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Bells for Gas-Buoys Light-House Board Matters.

Washington, D. C., Oct. 27.—The light-house board, which meets here on Monday next, will give up a great deal of time to a discussion of affairs of the lakes. The introduction of some forty-seven gas buoys on the lakes during the past season has opened up new problems to the board. Capt. Schley, who is chairman of the board, and Commander Wilde, the naval secretary, have been over the lakes recently, however, and they are fully acquainted with the situation. New tenders (vessels of the light-house service) must be provided for the lakes, as it is quite certain that the success of the gas buoys will cause the vessel owners to ask congress for more of them, to be provided next season. Even in providing for the care of the present number of buoys, the executive officers of the board are planning to send to the lakes, early in the spring, an old tender, the Laurel, now at Key West, which will be temporarily fitted for gas-buoy service until at least one new vessel can be built. A new tender for coast service, now building at the Crescent Ship Yard, Elizabeth, N. J., will replace the Laurel some time in December at the Florida station.

The Safety Car Heating & Lighting Co. of New York, which controls patents on the gas buoys in this country, is now experimenting with an improvement in them that will be of great advantage. Everybody has heard of the bell buoy that rings with the roll of the sea. On the lakes there are long periods of fog—heavy fog of the worst kind. This fog is seldom or ever in evidence when a seaway is on. It is accompanied by dead calm. Bell buoys are of no use when unaccompanied by motion of the sea. But it is proposed now to utilize the gas in the lake buoys, and in all gas buoys in fact, for the purpose of not only producing a constant light but also to operate a bell in the frame-work that contains the light. From tests already made with bells in the frame-work of the gas buoy, it has been found that there will be no difficulty in producing a strong sound every thirty seconds, and Mr. W. P. St. John, representing the New York company, says he is quite confident that by next spring, when the buoys are put out on the lakes, the bell-ringing apparatus will have been so far perfected that a strong sound will be produced every fifteen seconds.

Another special matter that will come before the light-house board is a suggestion from Commander Folger of the important eleventh district. He directs attention to the advantage of placing the whole of the lake system (ninth, tenth and eleventh districts) under a central office at Detroit or Cleveland, in order to secure a uniformity in practice throughout, and also the contact, by a single responsible officer, with the Lake Carriers' Association, or other bodies who are most deeply interested in the lake traffic. It is quite probable that this would facilitate the work of the light-house service on the lakes. Commander Folger recommends no alteration in the districts themselves, but he urges that a uniform policy of management over the whole extent of the lakes will materially benefit navigation. Now each district follows its own course. Where the officer in charge is a strict disciplinarian the light-house regulations are more rigidly enforced and the service is more satisfactory. He suggests no change in the present arrangement except the appointment of a supervising officer of high rank, to secure uniformity of policy over the whole expanse of the lakes. He also recommends increase in the power of lights generally throughout the lakes. This is a matter that was referred to by both Capt. Schley and Commander Wilde upon their return from the lakes a few months ago. They are also in favor of improvements in fog signal plants that will admit of signals being sounded immediately after the fog sets in. At some points on the lakes there is great delay in putting the fog signal apparatus in operation. A new buoy and coal depot at the Sault and a new general survey of the lakes are also recommended by Commander Folger. The supplemental buoy and coal depot at the Sault will undoubtedly be built, and it may be that a gas manufacturing plant will also be established at that point, but the proposed resurvey of the lakes is another matter. The war department made the survey that resulted in the publication of the charts now generally in use, and which are corrected from year to year. It is not probable, anyhow, that the light-house board would have much influence in the matter of a new lake survey.

The last congress appropriated \$15,000 for the establishment of three new branch hydrographic offices on the lakes, viz., at Duluth, Sault Ste. Marie and Buffalo, and the hydrographic officials have been making arrangements as rapidly as circumstances will permit for opening these offices. Ensign C. T. Jewell, son of Commander Jewell of Buffalo, is the young naval officer who has been selected for the Buffalo station. It is more than probable that the Buffalo office will be in the Guaranty building. Mr. Jewell is now spending a few days with Lieut. Stafford in the Cleveland office, so as to become familiar with the details of the duties of a branch hydrographic station. The offices at Duluth and Sault Ste. Marie will not be in working order until next spring. New ships of the navy are requiring quite a large number of officers just now, and this probably has as much as anything else to do with delay in opening these offices. It will be expected, of course, that the citizens of Duluth and Sault Ste. Marie, or the owners of the buildings in which the branch hydrographic offices will be located, will provide for the time ball service, as has been the case in Chicago, Cleveland and Buffalo.

Mr. Fayette Brown, father of Harvey H. Brown and Alex. Brown, and well-known as a pioneer of the iron industry, is seventy-four years of age, but is still engaged in business and is as active as most men of forty. At this season, when ducks are plentiful around the marshes of Lake Erie, he may be found pulling his own boat and handling a gun with as much ease as any of the young men in the ore and vessel business who take to this kind of sport.

Old Range Ores.—Ferdinand Schlesinger.

The action of the Oliver Mining Co. (Carnegie-Oliver combination) in paying big prices for leases of the Norrie and Tilden mines, which are leading producers on the Gogebic range, has caused considerable discussion in Cleveland iron circles regarding the value of the better class of mines on the old ranges of the Lake Superior region. A fuss has been made in the newspapers about the efforts of the Carnegie interest to secure control of the Pioneer mine, one of the large properties of the Vermillion range, but this is only a small part of their operations. They have traveled the full length of the Lake Superior region in negotiations for mines capable of producing ores of a kind suitable for mixture with their immense deposits on the Mesabi. This action on the part of the leading Pittsburg interest is taken to mean that they still doubt their ability to use more than probably 45 per cent. of Mesabi ore in their principal mixtures. One of the leading ore sales agents of Cleveland discussing this feature of the ore business says:

"If the furnaces are to be limited to less than half Mesabi as it now seems after three years of effort to use a greater percentage, and after a heavy expenditure in experiments by the largest consumers of ore, it is quite probable that the next problem will be to supply enough old-range Bessemer ore to meet the situation. Owners of old-range mines are not giving out information as to the amount of ore they have under ground, and can hardly be expected to injure their own interests by doing so, but I am honestly of the opinion that if not more than 40 or 45 per cent. of Mesabi is to be used we must soon seek new sources to supply ore of the old-range kind."

Thus it would seem that the mines of the Gogebic, Marquette, Vermillion and other ranges, where cost of production is heavy, and which were in some quarters pronounced worthless when steam shovels were put into the open pits of the Mesabi, are far more valuable today than they were two years ago. They are to profit from the immense increase in production of iron and steel and from the inability of the leading furnace companies to use the Mesabi product in the proportion they had figured on. This is why the best of the old-range mines are now looked upon with more favor than they have been for three or four years past. It is said that the Carnegie-Oliver combination has offered to pay a bonus of \$1,250,000 for a twenty-year lease of the Pioneer, guaranteeing a minimum output of 500,000 tons annually with 35 cents a ton royalty. Failure in concluding these negotiations is due largely, it is claimed, to differences between the fee owners and the holders of the present lease, which holds good for nine years.

Ferdinand Schlesinger, once famous as the owner of the valuable Chapin and the Buffalo group of mines on the Menominee range, has always professed great faith in old-range properties, especially those on the Gogebic. It is certainly wonderful that a man who has met with reverses of the kind encountered by Schlesinger should ever again be heard of in the iron mining industry. He will hardly cut much of a figure against combinations of the Carnegie-Rockefeller kind, but he is back to the Lake Superior country again, and he holds a control of four mines, doing business with the same Milwaukee banks that claimed to have closed their doors on his account in 1893. But his business is conducted on safer lines now and within limits that would have made him wealthy if applied to his operations of four or five years ago. Among the ore dealers of Cleveland to whom he is well known, Ferdinand Schlesinger is very highly regarded in a great many respects. He is a shrewd manager, hard worker and very capable in matters of finance. Although his manner and accent are decidedly foreign, he writes a letter that is striking on account of the clear English which it contains, and he is said to grasp readily the various sides of a business problem, no matter how difficult it may be. Was he not right in the view he took of Gogebic mines in competition with the Mesabi? He has grown in favor of late among business associates, but his chances of great success in the business now are nothing to what they were when he began, eight or ten years ago. The four mines which he now owns are the Newport, Palms and Anvil on the Gogebic and the Dunn on the Menominee range. Two of these, the Newport and Palms, are capable of producing more than 300,000 tons of very good ore annually. About \$200,000 is said to have been paid for the Newport.

The proposition of Gen. Supt. Wheeler of Sault Ste. Marie to close the American canal about Nov. 15, so as to facilitate work on the new guard gate that is to be constructed during the winter, directs attention to the possibility of the Sault river being closed by ice almost any year before the middle of November. In the fall of 1880, just prior to the opening of the Weitzel lock, it was proposed to close the canal Nov. 15, so as to begin work early on a cofferdam. Then there was no Canadian canal and the vessel owners kicked, but the last boat came down the 14th. That night a cold wave arrived and the next few days the mercury was down at zero. There was barely time in which to complete the cofferdam before winter was at hand. Detroit and Chicago boats, which brought supplies to the 'Soo,' hurriedly discharged their cargoes on the docks. The goods were not even checked off, as the boats were in great haste to get out of the river before thick ice formed, but they were unable to proceed further than Lake George, and were compelled to return and go into winter quarters. This happened prior to the 21st of the month, and the ice did not break up until spring.—Sault Ste. Marie News.

Gas buoys in the Sault river will be removed about Nov. 15 to 20.

Navigation Rules for the Lakes.

Since it was charged, some time ago, that even some of the inspectors of steam vessels on the lakes were unaware of the provisions of the White law permitting of the use of passing signals in all kinds of weather, George L. McCurdy of Chicago has been investigating matters that led up to this misunderstanding. He has evidently arrived at the conclusion, which is by no means new, that strange methods prevail in the steamboat inspection service; that the laws pertaining to the service are often promulgated in circulars that seem calculated to try the patience of a lawyer; that the vessel captain is not to be blamed for sometimes misunderstanding the crazy-patch of laws and rules that have been so often jumbled together in circulars from Washington, and that the interests of underwriters are jeopardized on account of a misunderstanding regarding the rules of navigation for the lakes.

Mr. McCurdy does not say all this, but he has taken up a correspondence with the supervising inspector general of steam vessels that intimates a great deal. In a letter addressed to Gen. Dumont several days ago, Mr. McCurdy claimed that although it should be fully and clearly understood that the "rules of the road" for the lakes were contained in the White law, he was informed that lake pilots upon visiting the offices of certain local inspectors in the spring of the present year were handed copies of an old circular that contained a ruling entirely contrary to the provisions of the White law regarding the use of passing signals in fog.

The circular referred to was issued from the headquarters of the steamboat inspection service, Maltby building, Washington, D. C., under date of Feb. 28, 1894. It is an old circular, published before the adoption of the White law, and directs attention to a resolution of the board of supervising inspectors regarding the "misuse of whistle signals for steamers passing each other on the lakes, seaboard and western rivers." The resolution directs local inspectors to instruct pilots that the signals provided for steamers meeting, passing or overtaking "are never to be used except when steamers are in sight of each other and the course and position of each can be accurately determined, in the day time by a sight of the vessel itself, or at night by its signal lights."

Of course, everybody connected with the lakes knows, or should know by this time, that since the White law went into effect no such rule as this is applicable to the lakes. Lake steamers are permitted and expected to blow passing signals in all kinds of weather. But Mr. McCurdy says he is informed that copies of these old circulars were handed out to lake pilots as late as the spring of the present year. Gen. Dumont of course demanded specific charges in this regard, and the result is another letter from Mr. McCurdy that makes very interesting reading. The letter is printed in full herewith:

To James A. Dumont, Supervising Inspector General of Steam Vessels, Washington, D. C.—Dear Sir: Your esteemed favor under date of Oct. 18, 1897, was duly received. Upon addressing you again in regard to the rules of navigation for the great lakes, I feel that it is of importance that you should first realize my aim and interest in the subject. We have a great many millions of dollars at risk on hulls and cargoes, and my whole and only object is to minimize the losses.

I understand that the purpose and aim of your department is to furnish all possible safeguards to navigation, and consequently I have felt it my privilege to approach you freely and offer any honest criticisms suggested by my experience, and to hope for your careful consideration of such criticisms with a view to obtaining the best results in the prevention of marine disasters. On account of my position, it would be embarrassing for me to single out and point your attention to particular masters and inspectors, as suggested in your letter, but aside from my first communication, your published letter of August 13, 1897, would indicate your recognition of a confusion and the necessity of pointing out what rules govern on the lakes.

The newspaper reports of interviews with inspectors during the past summer, in addition to talks with masters, have impressed me with a full belief of the necessity of calling your attention to the matter. You express an opinion that your circular issued in February, 1894, (forbidding passing signals in a fog) has not been generally distributed. I would feel much relieved if you could ascertain that your opinion agrees with the fact, but I am well satisfied that you would learn differently upon a careful inquiry. It so happens that a representative of my office has this day reported that while aboard a large steamship this morning, for the purpose of inquiring as to a recent stranding accident, he was informed by the master and mate thereof that copies of the above circular, contradicting the White law, were given them with their renewal of licenses this spring. One claimed to have received his circular from the inspectors at Milwaukee and the other from Buffalo.

From your letter, I judge that you consider that your department has done its full duty by providing that in 1895 your circular of February 28th, 1895, should be furnished to masters and pilots with their licenses and renewals, and further providing that copies of pilot rules, founded on the White law, should be carried on steamers. We knew of these provisions, but I have not been impressed with this having in any sense met the requirements, and I most respectfully and earnestly invite and urge your consideration of the following suggestions:

First: The circular you distributed on the lakes in 1895 (and which I understand from your letter, shows just the extent that you have gone in posting lake masters as to the governing statutes) contains:

1. A lot of information as to acceptable life saving devices and other miscellaneous information and rules, relating to boiler testing, life boats, examinations, etc.

2. Then four pages of the circular are devoted to rules and regulations for the government of pilots, formulated by the supervising inspectors to apply on harbors, rivers and inland waters *exclusive* of the great lakes and their tributary and connecting waters.

3. Then comes extracts from Sec. 4233 of the revised statutes, being the act of 1864, which I understand is superseded by the act of 1895, so far as the lakes are concerned, so that your circular is loaded with obsolete rules. And that without even a note to call mariners' attention to that fact.

4. The circular then contains diagrams illustrating the requirements as to lights, etc., under this superseded act of 1864.

5. Then follows another set of fourteen inspectors' rules for pilots

on the Red River of the North, and rivers whose waters flow into the Gulf of Mexico, and their tributaries.

6. Beginning at page 20 of the circular, I find the pilot rules formulated by your board to apply on the great lakes, and these are followed by an extract from the statute now governing.

From the foregoing it appears that the rules when handed to our lake masters and pilots by the inspectors under your direction were coupled and burdened with a confusing mass of rules and regulations not applicable to the waters these masters and pilots are navigating. When a man obtains his license as a navigator on the great lakes, why should he be given a set of rules for waters of which he knows and cares nothing? Why should he be called upon to decide that over two-thirds of the rules given him as a guide to his conduct, as a licensed pilot on the lakes, is mere surplusage? Why should any rules be given him that are exclusively for others?

Our masters are intelligent and skilled navigators, but not lawyers, and I consider it a grave mistake to furnish them with a combination of applicable and inapplicable rules and statutes, and ask them at their peril to separate and construe the rules by which their actions will be judged upon the happening of a disaster. I am further of the opinion that there is a mistake in furnishing these masters with only extracts from the law of 1895, instead of with the full text thereof. The act of congress provides "that the following rules for preventing collisions shall be followed, etc.," and I cannot conceive why you should have eliminated from your circular so many of the rules which congress saw fit to incorporate in the act for preventing collisions. I find that while you have given the inspectors' rules in full you have eliminated statutory rules 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 27 and all but section 2 of rule 28. I do not grasp the reason for this and it would seem particularly pertinent, since the circular contains so much that is not law to masters receiving them, that their attention should have been challenged by an insertion of the repealing clause of the act of 1895, being section 4 of rule 28, which provides "*that all laws, or parts of laws, so far as applicable to the navigation of the great lakes and their connecting and tributary waters as far east as Montreal, inconsistent with the foregoing rules are hereby repealed.*"

In consideration of all the foregoing, I cannot agree with your conclusion that "if there is any lack of information on the subject, it must be purely through the negligence or indifference of those masters and pilots, if there are any, who profess to be ignorant of their duties under the existing laws." In conclusion I must respectfully urge that you will, if possible, see that the licensed officers of the great lakes are furnished with unencumbered copies of exclusively the rules by which they are supposed to be governed. This matter is of so much importance to us that we are willing, at our own expense, to have a copy of the statutory and your pilot rules printed on large cards and distributed for posting, but you will readily understand why it would be preferable to have you do this from your department and require the posting. Trusting that our interests involved will appear to you as sufficient justification for the freedom of our remarks, and that you will kindly consider and weigh the above considerations.

Yours most respectfully,
GEO. L. MCCURDY.

Chicago, Ill., Oct. 22, 1897.

Lake Shipping Held Up as an Example of Protection.

Referring to the recent report of the commissioner of navigation, Mr. E. T. Chamberlain, showing that during the year ending on June 30 last the output of new vessel tonnage on the lakes was greater than the combined output of all other parts of the country, and that during the past decade the increase of tonnage owned in the United States has been credited almost entirely to the lakes, the Baltimore Journal of Commerce says:

"Three important facts appear in this report which are only vaguely disclosed by the figures. The first is that all the increase which has been made in our merchant marine comes from the enormous and solid growth of our commerce on the great lakes; the second is that our coastwise shipping has just about held its own, and the third is that our ocean shipping has steadily declined. The lesson taught by these conditions is perfectly clear and simple. It means that on the lakes, where it receives the most effective protection, the ship building industry enjoys its highest prosperity and reaches its most splendid proportions; whereas, on the ocean, where it has no protection at all, it is gradually falling into decay under the aggressive competition of more enterprising nations. For ten years the increase in the tonnage of our merchant service has come almost wholly from the shipping on the lakes, our interests in those waters having grown from 733,069 tons in 1887 to 1,410,103 tons in 1897. The steam tonnage of our entire shipping interest has increased 816,000 tons in this ten-year period, of which 590,000 tons must be credited to the lake trade. Here, then, is the situation: In American waters the American ship builder is supreme. In models, material and construction his craft are equal to the best in the world, and he has given to the vast commerce of the lakes a fleet of vessels which have no rivals on any continent. But under our present unwise laws he cannot compete with foreign ship builders for the carrying trade of the ocean. Our colossal shipping on the high seas is monopolized by European vessel owners, to whom the American people pay upward of \$150,000,000 in freight charges every year. The inconsistency of denying to American enterprise on the sea the same protection which is readily given to American enterprise on land is the crowning folly of our statesmanship, and the results of it are glaringly written in the yearly repeated story of our decaying commerce on the great oceans. Republican statesmanship, fortified with the instructive lessons set forth in Commissioner Chamberlain's report may be depended upon to correct the costly defects in our shipping laws and restore the American merchant marine to its ancient scope and power."

The Marine Review has prepared in neat oak frames cards containing the schedule of time required to be run between certain points in the St. Mary's river under the speed limit of seven miles an hour. When hung in a pilot house, distance and time may be readily noted from these cards, as the type is large. They will be sent by express to any address at \$1 each, or may be had upon application at 409 Perry-Payne building, Cleveland, for 65 cents each.

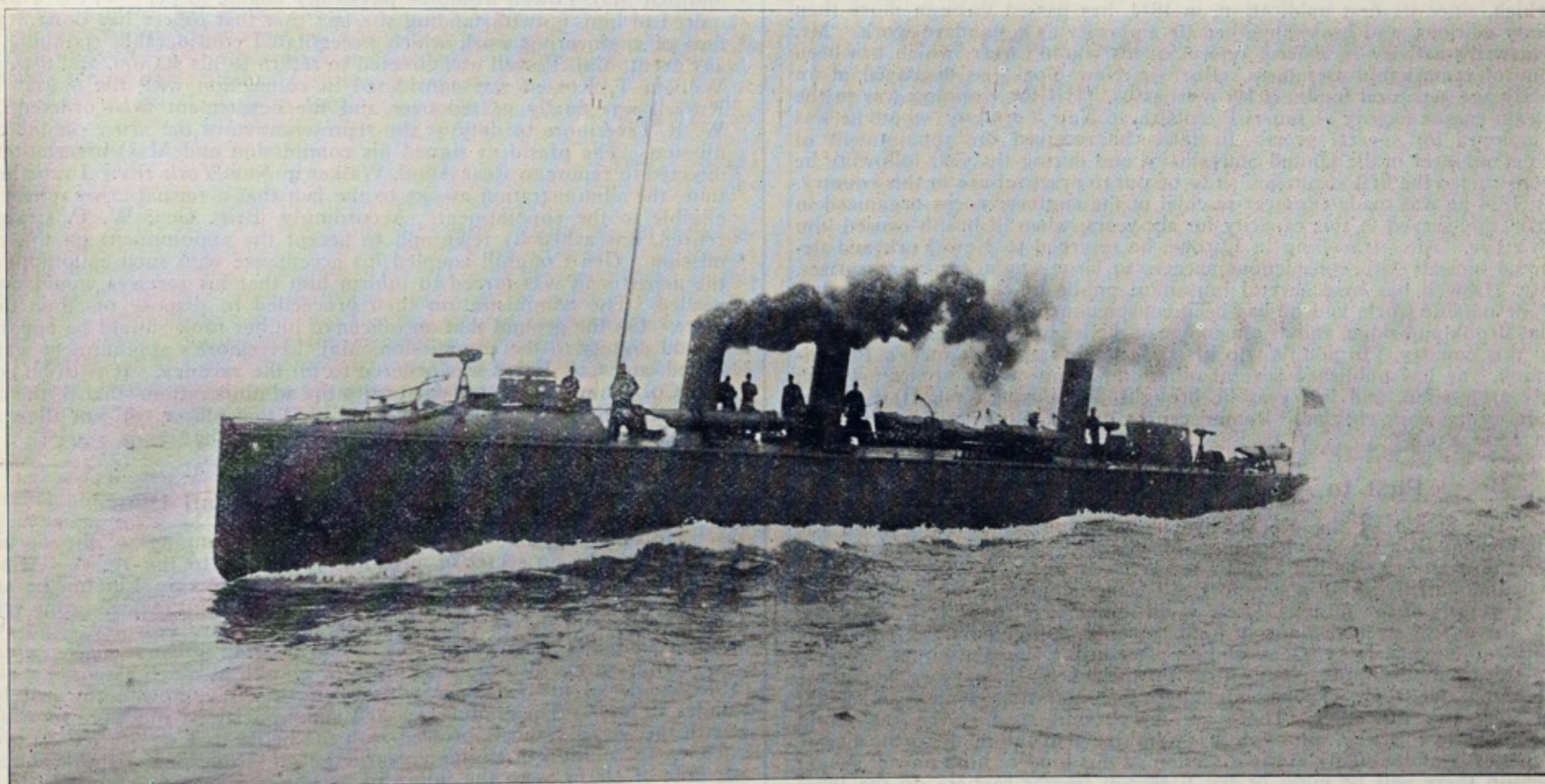
Answering Mr. Babcock's Article on Ship Building.

Let everybody get posted on shipping matters. From the manner in which the newspapers of the country are discussing the question of building and operating ships it is more than probable that "A New Merchant Marine" will be the leading topic in the next congress. But the advocates of legislation favorable to the shipping interests will not have it all their own way. A strong opposition will be made to any measure of subsidies and to the proposed scheme of discriminating duties. Every newspaper article favoring assistance from the government for merchant ships is met by argument on the other side from papers like the New York Commercial Bulletin, Philadelphia Record and others. The Commercial Bulletin takes up the article of Mr. W. I. Babcock on possibilities of ship building in this country, which was published in the Review recently, and answers it with the following lengthy editorial:

"The Mr. W. I. Babcock of the Chicago Ship Building Co., whose study of British ship yards and their payrolls and their tools has satisfied him that American ship yards could compete with them if they could only get a small part of the business the English yards have, is the same Mr. Babcock who three years ago published in a New York paper an article two columns long demanding discriminating duties in order to protect American shipping from foreign competition, and also, if we are not greatly mistaken, insisting upon liberal subsidies from our government in order to prevent the utter extinction of the American merchant marine. It is possible that the cost of shipbuilding has declined here in the past three years, but the important change has been in the amount of Mr. Babcock's information. It is true that iron and steel have been going down, but when Mr. Cramp built the two ships for the American Line he used American material, though the law gave him the right to use foreign material duty free; evidently the domestic material was not very much more expensive than the foreign, or Mr. Cramp would not have refused

all construction in domestic yards and higher subsidies on the navigation of national vessels than on vessels bought abroad.

"In his communication to a New York newspaper three years ago, Mr. Babcock deeply bewailed the reciprocal abolition of discriminating duties between this country and England at the close of the last war. He was pleased to say that 'outwitted by diplomacy we agreed by treaty to discontinue this wise system.' What we got was a chance to compete with England in the carrying trade, and it contributed largely to that wonderful development of our sailing tonnage which excited the greatest apprehension of British shipowners, and which lasted till the iron steamer proved a more economical carrier than the wooden sailer, and till the acquisition of territory from Mexico, primarily the acquisition of the gold region of California, and the development of the railroad offered us better profits on land than we could expect to get at sea. The development of a continent created a demand for labor which probably made the cost of production much higher here than abroad till it was equalized by mechanical improvements, but it also offered to labor and capital better employment than could be found at sea. Now that the attention of American capitalists is turning to the sea it is found that the cost of construction has been nearly equalized, but there still remains a greater cost of operating American than foreign vessels, due mainly to the fact that the employment which can be had on land keeps up the wages upon the sea. With decreasing opportunities for investment in building western cities and in spanning the continent with railroads, American capitalists will make further discoveries of their ability to compete with foreigners on the sea. To invite European nations to discriminate by dues against our vessels would be about the worst thing that could befall our mercantile marine, and no one has been bold enough to propose subsidies for all our vessels; the most extreme subsidists have only proposed subsidies for a few favored lines of steamers, several of which have tried the policy and found the number of sailings and the rate of speed required cost more than



United States Torpedo Boat Porter running under Full Power.

the English offers which were pressed upon him and which he once said he carefully considered and figured on.

"There being no very great difference in the cost of the material, it is in the cost of labor that the helplessness of the American shipbuilder in the presence of foreign competitors had to be sought. It was never disputed that wages were higher here than in England; Mr. Babcock's recent investigations have satisfied him that English wages are only 55½ per cent of American wages, but he explains that the American ship builder economizes in labor by the use of better tools and a larger proportion of machine work, while the labor unions in England throw innumerable obstacles in the way of the men's rendering efficient work, so that there is little or no difference in the cost of labor. These facts were perfectly well known three years ago, and a very long time before that; that the higher wages in this country were offset in greater or less degree by the greater efficiency of labor and the much freer use of machinery, and that the labor unions, obstructive as they are here, do not impose nearly so many foolish obstacles in the way of a man's doing a good day's work as they do in England. The greater cost of production in this country is exaggerated for very evident purposes when tariff laws are to be made and where there is a prospect of getting subsidies. We congratulate Mr. Babcock on his discovery that the difference between the cost of ship building here and in England is so moderate that our yards could wipe it out if they get orders enough so that they could do business on a large scale. The discovery was made by others some years ago, and it might have been guessed easily enough from the fact that English ship builders are able to undersell Continental ship builders, though wages are higher in England than on the Continent, and much of that vast business upon which Mr. Babcock casts longing eyes is on orders from countries where wages are lower than in England and where governments pay bounties on

the subsidy came to. The advantage of the subsidy has generally been as much exaggerated as the disadvantage of high wages and prices of material."

Cargo Records—Lake Freight Ships.

With steel vessels like the Polynesia, Victory, Constitution and others of the 400-foot class taking coal during the past week, big cargoes of coal have been quite numerous. The largest—5,654 tons—was taken by the Polynesia. Following is the cargo record corrected to date:

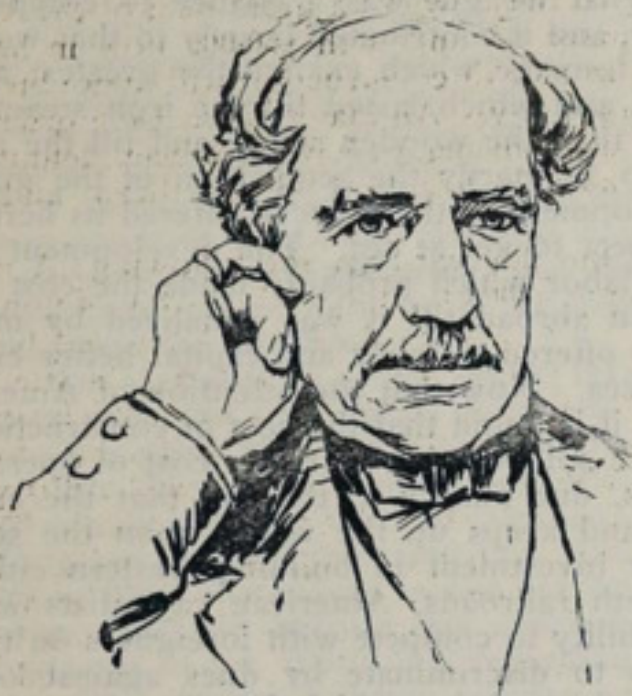
Iron Ore—Schooner Amazon, owned by James Corrigan of Cleveland, 5,631 tons gross, or 6,307 net, Duluth to South Chicago, draft of 17 feet 1 inch; steamer Empire City, A. B. Wolvin of Duluth, 5,622 tons gross, or 6,296 net, Two Harbors to Cleveland, draft of 17 feet 2 inches; schooner Polynesia, James Corrigan of Cleveland, 5,477 tons gross, 6,134 net, Duluth to Fairport, draft of 16 feet 8 inches; Andrew Carnegie, Wilson Transit Co. of Cleveland, 5,425 tons gross, 6,076 net, Two Harbors to Cleveland, draft of 17 feet 4 inches.

Grain—Steamer Crescent City, A. B. Wolvin of Duluth, 225,000 bushels of corn, equal to 6,300 net tons, South Chicago to Duluth, draft of 17 feet; steamer Empire City, A. B. Wolvin of Duluth, 205,445 bushels of wheat, equal to 6,163 net tons, Duluth to Buffalo; schooner Amazon, James Corrigan of Cleveland, 217,000 bushels of corn, equal to 6,076 net tons, Chicago to Buffalo, 16 feet 6 inches draft; steamer Crescent City, A. B. Wolvin of Duluth, 318,000 bushels of oats, equal to 5,088 net tons, Duluth to Buffalo.

Coal—Schooner Polynesia, James Corrigan of Cleveland, 5,654 net tons of bituminous, Cleveland to Duluth, 16 feet draft; schooner Aurania, John Corrigan of Cleveland, 5,187 net tons bituminous, Toledo to Milwaukee.

A Veteran Engineer.

The younger officers of the United States navy who attended the recent International Congress of Naval Architects and Marine Engineers in London, made a great deal of Mr. Charles H. Haswell of New York, who was in the party from the United States. Past Assistant Engineer



HON. CHARLES H. HASWELL.

McFarland was especially attentive to Mr. Haswell and lost no opportunity to accord to him the honor that was due him as the first engineer-in-chief of the navy. Although in his eighty-ninth year, Mr. Haswell is still actively engaged at his profession. He crossed the Atlantic alone to attend the congress in London, and traveled all over England and Scotland with the naval architects and marine engineers, sometimes visiting two or three ship yards or dock yards in a day. He missed no part of the programme of sight-seeing and entertainment furnished by the English and Scotch ship builders for their guests, although there was a constant whirl of excitement about it that was sufficient to try the nerves of some of the younger members of the party.

Of late Mr. Haswell has been engaged in bringing out, through the Harpers, a new edition of his "Mechanic's and Engineer's Pocket-Book," which, since its first publication, in 1844, has passed through more than sixty editions, and has maintained its authority as a standard work. Mr. Haswell's activity is, indeed, typical of his whole career, which has been one of remarkable usefulness. Born in New York, he displayed at an early age a natural fondness for mechanics. His first training was in the steam-engine factory of James P. Allaire, in New York city, where he was employed for several years. In 1836 he received the appointment of chief engineer in the United States navy, and during the year following he constructed the first steam launch to be put to practical use in this country. In 1844 he was made engineer-in-chief of the engineer corps organized in 1839, and served in this capacity for six years, when ill health caused him to retire. After travelling in Europe, he returned to New York and devoted himself with conspicuous success to large engineering enterprises. Mr. Haswell has held several important public offices, in which he has done notable work, and he has been conspicuous as one of the trustees of the Brooklyn bridge, and as a member of the leading societies of engineers in this country. In addition to his "Mechanic's and Engineer's Pocket-Book," he has published several other important works connected with his profession, and last year he brought out, through the Harpers, an interesting work entitled, "Reminiscences of an Octogenarian of the City of New York."

First to Adopt Improvements in Ships.

The action of the Rockefeller management in ordering from the Bethlehem Iron Co. steel forgings for parts of the machinery of the big freight steamer to be built by F. W. Wheeler & Co., of West Bay City, will undoubtedly result in steel forgings being adopted generally in the best lake vessels of the future. There is no doubt of advantage to be gained by the use of steel forgings in high-powered ships containing triple and quadruple expansion engines, and no place in the world are improvements in ships adopted more readily than on the lakes. Two years ago, there were no quadruple expansion engines or water tube boilers in freight steamers on the lakes. There are few freight steamers in the world equipped in this way, although it is admitted that the tendency in marine practice is undoubtedly in the direction of this kind of high power. Next season there will be eight or ten 6,000-ton freight carriers on the lakes that will have quadruple engines and water tube boilers, the latter of the Babcock & Wilcox type.

In the matter of steel forgings it may be interesting to note the following conclusions of Mr. Gravell, an expert connected with the French classification society known as the Bureau Veritas, regarding the causes to which various engineers attribute the breaking of tail-end shafts: Defective material—When shafts are forged from scrap, this is sometimes partly iron and partly steel, and the steel perhaps of different qualities, so that the shaft can in no way be homogeneous. He therefore recommends ingot steel, forged under a hydraulic press, but, he says, shafts made of cast steel without forging have also given satisfaction. In any case the shaft should be well annealed. Defective design—The shaft too light, or formed with sudden changes in diameter, which localizes the intensity of stress, and thus tend to weaken the shaft. Bending stresses, through the shaft getting out of line, either through alteration in the form of the ship under different conditions of loading, or through the bearings wearing unequally. Vibration—When the after-part of the vessel is not strong enough vibration will occur which will tend to make the shaft brittle. Hammering—When the after bearing is allowed to wear very loose the shaft will knock about in the bearing, especially in a rough sea, which is liable to upset the molecular condition of the metal and lead to rupture.

Worden G. Smith of Milwaukee, inventor of the diving bell that was successfully used in raising copper from the wreck of the steamer Pewabic, sunk in 163 feet of water on Lake Huron, has managed thus far to guard against a full description or illustrations of the device appearing in print. The Milwaukee Evening Wisconsin attempted, a few days ago, to illustrate and describe the Smith bell, but it was quite evident that they had failed to get anything from first hands.

Hunters' Rates—Via the Nickel Plate road to designated points in the northwest, and southwest; also to local points in western Ohio and northern Indiana.
No. 353, Nov. 15.

More Criticism of Nicaragua Canal Affairs.

It is charged openly in Washington that all the delay in the war department in the appointment of a successor to Capt. O. M. Carter on the Nicaragua canal commission, was due to objection raised by the promoters of the canal to several officers of the army engineer corps proposed for the place. The action of the administration in this matter is severely criticized in several respects. The Army and Navy Journal says:

"The result of the course pursued by the authorities in tendering the position to engineer officers and upon their acceptance directing them to return to their stations on some trivial excuse, will be to cause congress to question the report of the commission should it be favorable to the canal route adopted by the Maritime Canal Co., notwithstanding the integrity and engineering ability possessed by Rear Adml. J. G. Walker, the president of the commission, and Col. Hains. Already whisperings are heard of interference by the canal advocates in the administration's choice of members of the commission, and in some quarters it is charged that the frequent change in the army member was due to representations made by those interested in the construction of the canal. This charge would seem to be borne out when the number of officers considered in connection with the appointment on the commission is recalled. Capt. Carter resigned because he found it necessary to devote himself to the inquiry being conducted in the charges recently filed against him. His resignation was accepted as soon as received and after consultation with the president and the chief of engineers, Secretary Alger telegraphed to Maj. S. S. Leach, and asked him if he would serve on the commission. The correspondence with Maj. Leach, however, did not result in his acceptance of the appointment, and Maj. C. F. Powell was tendered the appointment, and upon his acceptance, he was directed to come to Washington to confer with the secretary of war. Evidently Maj. Powell was objectionable to the canal advocates, for we understand they represented to the administration that the country traversed by the canal route was extremely hilly, and that Maj. Powell would be physically unable to perform the work required of him, notwithstanding the fact that that officer has done a great deal of engineering work which necessitated considerable tramping. In any event, Maj. Powell was directed to return to his station, and then Maj. William T. Russell was considered in connection with the place. Maj. Russell was finally passed over and the department then ordered Maj. W. R. Livermore to duty as the representative of the army on the commission. The president signed his commission and Maj. Livermore was directed to report to Rear Adml. Walker in New York city. In the meantime, the administration awoke to the fact that a retired army officer was eligible to the appointment. Accordingly, Brig. Gen. W. P. Craighill, retired, was asked by telegraph to accept the appointment on the commission. Gen. Craighill coupled his acceptance with such conditions that the department was forced to inform him that his services would not be needed. The administration then proceeded to dispose of Maj. Livermore. On the ground that an officer of higher rank should be appointed to add dignity to the commission, Maj. Livermore's appointment was revoked, and Col. Hains was ordered to fill the vacancy. It is to be hoped that Col. Hains will be satisfactory to the administration—that is, the canal advocates, although we know full well that that officer will not allow anything or anybody to swerve him from his duty as he sees it.

The Turbinia.—Forty Miles an Hour.

Hon. C. A. Parsons, inventor of the novel engines of the Turbinia, seems to make no secret of anything pertaining to the vessel. At a recent meeting of the Institute of Marine Engineers in London he again discussed very freely every point that was brought up regarding the vessel.

"Interest in the vessel is still very great," says Fairplay, "and every seat available at this meeting was occupied by an attentive audience eager to learn from the distinguished inventor himself as much as possible about the wonderful little steamer which has, they say, now performed forty miles an hour. The engineers asked many questions and were so satisfied with the answers and impressed with the belief that we are on the eve of a great revolution in engine construction, that one of the speakers raised a note of alarm as to the future of marine engineers. According to this construction there would be nothing for marine engineers to do in a steamer with such engines, which the captain could start and stop by handles on the bridge. Mr. Parsons said that it was contemplated to apply the turbine engine to fast passenger steamers. He did not recommend it for speed less than fifteen knots, but for higher speeds he thought it would be preferable for economy, and in addition there would be the advantages of freedom from vibration and a saving of room. Several of those present had had charge of the Parsons engine for electric lighting on shipboard, and they all spoke well of it for efficiency. One of them said he was glad to have had this opportunity of hearing its construction explained, for the one he had had charge of had never afforded him an excuse for opening it up; nothing ever went wrong with it, so he had never seen the inside of it. Another speaker said that he had experience with the turbo-engine of Mr. Parsons at sea, and something had gone wrong with it. A wire strainer for the steam had been allowed to get adrift, and part of it had been carried by the steam into the chamber where the blades were, and several complete circles of the blades had been broken out of their seats. The engine still ran, and the light was merely reduced in brightness. They did not know what was wrong until they afterwards opened up the turbo. They cleared out the broken blades and put the engine together again, and it worked apparently as well as ever for the rest of the voyage."

When dealing with collectors of customs in matters pertaining to the tonnage of new vessels, it will be well for vessel owners to give special attention to the measurements from which tonnage is calculated. Although government fees now amount to very little with lake vessels, it is well known, of course, that dry dock charges, fees in the Lake Carriers' Association, Canadian canal fees and other important items are based on tonnage. This work of measuring vessels for tonnage is sometimes new to the deputy collectors of customs to whom it is entrusted. The Flint & Pere Marquette Railroad Co. is now having trouble over the tonnage measurements of its big steel ferry steamer.

Ship-Yard Matters.

All of the lake ship builders refrained from bidding on the revenue cutter for the New York station, and for which the revenue cutter officials in Washington opened bids on Thursday last. The Globe Iron Works Co. of Cleveland would probably have submitted a price on the vessel, but with coast ship builders idle and lake yards quite busy, it was figured that the disadvantage of having to pass the vessel through the St. Lawrence canals in delivering her was too much of a handicap. The Columbian Iron Works & Dry Dock Co. of Baltimore offers to build the ship for \$141,000 and deliver her July 25, 1898. This cutter is to be 188 feet over all, 170 feet between perpendiculars, 29 feet 6 inches beam, 16 feet 6 inches deep amidships and 10 feet draft. Other bids were: Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, New York City, \$151,800, time Sept. 20, 1898; Lewis Nixon, Elizabeth, N. J., \$173,900, time Sept. 1, 1898; Charles Hillman Ship & Engine Building Co., Philadelphia, Pa., \$173,000, time Sept. 1, 1898.

It is quite probable that several of the harbor tug companies around the lakes will soon be figuring on additions to their fleets, and the boats to be built will undoubtedly be steel tugs of the largest type. L. P. & J. A. Smith of Cleveland have just purchased in the east a large compound engine, built by the Cramps, which they will have placed in a new steel hull, to be built during the winter. This new tug will be in addition to the tug just launched for the Smiths by Bell of Buffalo, and which is 90 feet long, 23 feet beam and 14 feet deep. The big Cramp-built engines will develop about as much power as engines of the largest wooden steam-barges, and on account of their weight it is proposed to provide water tube boilers for the new tug, making a saving in weight of boilers to compensate for extra weight of engines.

A few men with a good practical knowledge of ship building have found places in lake ship yards as representatives of ship owners who have big freight carriers under way. Robert Curr, who is now at West Superior, is one of these. Mr. Curr is looking after the interests of the Minnesota Steamship Co. in the construction of a big tow barge, but does not intend to give up the modest but satisfactory business which he has established in surveys and other work at Cleveland. He is meeting with favor among the largest of the ship-owning companies.

Mr. Colgate Hoyt of the American Steel Barge Co. is figuring on building or buying a steamer yacht that will be just suited to the limits of lock dimensions in the Erie canal, so as to admit of ready passage between New York and the lakes. If Mr. Hoyt builds such a yacht the contract will undoubtedly go to the barge company.

The Ship Owners' Dry Dock Co., Cleveland, has just issued a circular announcing their ability to care for all repair work on the hulls of steel as well as wooden vessels. The plant of several large tools purchased for this work is now complete in all particulars.

The Cleveland Ship Building Co. has secured the contract for quadruple expansion engines for the steamer to be built by the American Steel Barge Co. at West Superior. The new boat will have Babcock & Wilcox water tube boilers.

River and Harbor Estimates for the Next Congress.

It is expected, of course, that the next congress will pass a river and harbor bill, and the government engineers have accordingly prepared estimates on work to be undertaken during the next fiscal year, which begins July 1, 1898. These lists of estimates are prepared as a guide to congress. In many instances the items are greatly reduced, but they are valuable from the fact that they represent, in the opinion of the engineers, the amounts that may be profitably expended at the different points: Following are estimates for the lakes taken from the report of the engineer in chief, Gen. Wilson:

Toledo harbor.....	\$300,000
Sandusky harbor	185,000
Huron harbor	75,000
Lorain harbor	38,500
Cleveland harbor	450,000
Fairport harbor	250,000
Ashtabula harbor	480,000
Conneaut harbor	495,000
Buffalo harbor	618,750
Chicago river	400,000
Calumet river harbor (South Chicago).....	300,000
Calumet river	250,000
Duluth-Superior harbor	1,102,776
Michigan City harbor	140,000
Marquette harbor	100,000
Harbor of refuge, Marquette bay.....	30,000
Harbor of refuge, Grand Marais.....	100,000
Sturgeon bay ship-channel	63,500
St. Joseph harbor	100,000
South Haven harbor	45,000
Kalamazoo river	145,000
Grand Haven harbor	30,000
Grand river	250,000
Muskegon harbor	110,000
Pentwater harbor	40,000
Manistee harbor	50,000
Frankfort harbor.....	65,000
Harbor of refuge, Portage lake	160,000
Charlevoix harbor	25,000
Petoskey harbor	55,000
Hay lake channel	494,115
Harbor of refuge, Sand Beach	250,000
Black river (Mich.).....	32,000
Detroit river	91,257
Ashland harbor	100,000
Green Bay harbor	30,000
Sheboygan harbor	26,600
Harbor of refuge, Milwaukee	155,650

Improvements at the Barge Works.

West Superior, Wis., Oct. 26—When improvements now under way at the works of the American Steel Barge Co. are completed the plant will be equipped to meet its competitors in other parts of the lakes. Messrs. Ford and Dierickx, the former in the ship yard and the latter in the drawing office, are applying to these works a great deal of the kind of energy that young men are capable of, and with \$60,000 now in hand for improvements, a big reduction in cost of construction will undoubtedly be made on the two vessels now under way. All material has been ordered for the new Minnesota line barge, and dimensions have also been definitely fixed. She will be 390 feet over all, 370 feet keel, 46 feet beam and 26 feet depth.

Among new tools ordered for the ship yard are the following: A new punch from Hilles & Jones, weighing 52,000 pounds and capable of punching a hole 15 inches in diameter by 1½ inches thick; an improved beam bender and large coldsaw from Wm. Sellers & Co., as well as a stationary steam riveter and Ajax combination bolt and rivet upsetting and forging machine; also an Ingersoll-Sargent air compressor with a capacity of 650 cubic feet of free air per minute. The Pneumatic hammers and drills will be of the Boyer type, manufactured by the Chicago Pneumatic Tool Co.; other pneumatic tools of different makes will also be used. For operating the new overhead crane and other motors there will be a 100 K. W. generator. About 25 arc lights of 2,000 candle power each have been located in the dry dock, punch shop and in other places around the yard. These are operated by a Thompson-Houston dynamo.

Notwithstanding reports to the contrary, a new machine shop will be built and will be an important feature of this plant. It will be of steel and brick, 84 by 150 feet. Several tools for the machine shop are already here. It is more than probable also that work on the proposed new dry dock, which is to be larger than any dock on the lakes, will be begun shortly.

From a Delaware River Ship Builder.

Following a suggestion from leading representatives of the ship building industry, the Review reprinted last week an article on ship building in this country and in England, written recently by Mr. W. I. Babcock of the Chicago Ship Building Co. One object in reprinting the article was to call special attention to it among ship builders of the country and among members of committees that have to do with maritime affairs in both the senate and house of representatives. Mr. Charles S. Robb, manager of the Jackson & Sharp Co., ship builders of Wilmington, Del., acknowledges receipt of the paper and says:

"We have read Mr. Babcock's article with pleasure. The subject is very ably presented to American readers, and the ship builders of this country will be pleased to learn, from so good authority, that even now we are able to build ships as cheaply as our great English rivals. Before reading to the close of the article we hoped to find some plan or suggestion from Mr. Babcock as to the best means of restoring our ship building industry and our lost carrying trade.

"The rebuilding of our navy, referred to by Mr. Babcock, will of course give contracts to a few of our largest yards, but this is almost as nothing to the requirements of the merchant marine could we secure the carrying trade that naturally and rightfully belongs to us. We hope Mr. Babcock will take the matter up again and give us his views on this important subject. If ship builders and ship owners could agree on some plan, congress would no doubt give us the necessary legislation. Discriminating duties gave us the carrying trade nearly a hundred years ago, and we held it for about thirty years, or until the law was relaxed from time to time from the importunities of foreign nations. This subject is now prominently before the American people. If we restore this law, enacted in the wisdom of our forefathers, American capital will become available for the establishment of new yards and our own America will have the greatest ship building boom the world has ever seen."

Double-Track Idea for Lake Huron.

Capt. J. S. Dunham of Chicago refers to the great number of collisions that have occurred in the vicinity of Presque Isle, Lake Huron, and is credited with the idea of providing means to have up-bound vessels take a course some distance out from the west shore of Lake Huron, while down-bound vessels would pass closer to the land. The scheme has its advantages, but it would be very difficult to enforce rules that would make it effective. The time is not far off, however, when the growing commerce of the lakes will demand the adoption of measures of this kind. One course on Lake Huron, according to Capt. Dunham's idea, would be for all up-bound boats in leaving St. Clair river at Port Huron to keep out in the lake until they were from eight to twelve miles outside the course they now follow. They would maintain this course all the way to Presque Isle. When bound for Lake Superior they would continue the same distance to the eastward, finally returning to the old course at Detour. When bound for Lake Michigan they would cross over above Presque Isle and come back to the old course there. All boats bound down would keep close to the shore, following the present course. Vessels from Lake Superior bound down would cross the courses of Lake Michigan boats bound up. Thus, only at one point the entire length of Lake Huron would boats running in opposite directions meet. As soon as that point was passed captains would be certain that however thick the fog they were safe, for no boats would be coming in the opposite direction. All they would have to look after would be boats bound the same way, and it would be an easy matter to avoid them. The objection to having two courses—that some time might be lost on the up trip by boats keeping out in Lake Huron—is met by the statement that while a little time might be lost in pleasant weather, yet the gain of being free to run at a fair speed notwithstanding foggy weather would far more than overcome the loss. This is not taking into account the great increase in safety. Down-bound boats would not lose any time either from Lake Michigan or Lake Superior. They would keep along the course they have always followed, free to run, with nothing ahead of them. To make the two courses effective, vessels should be required to keep on them in all weather, for with the fickleness of the Lake Huron fog there is never any telling when the surface of the water will give forth a cloud.



DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels.....	1,792	924,630.51
Sailing vessels and barges.....	1,125	354,327.60
Canal boats.....	416	45,109.47
Total.....	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30.	1891	1892	1893	1894	1895	1896
Number.....	204	169	175	106	93	117
Gross Tonnage.....	111,856.45	45,968.98	99,271.24	41,984.61	36,352.70	108,782.38
Total.....	864					444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (From Official Reports of Canal Officers.)

	St. Mary's Falls Canals.			Suez Canal.		
	1896*	1895*	1894	1896	1895	1894
Number of vessel passages.....	18,615	17,956	14,491	3,409	3,434	3,352
Tonnage, net registered.....	17,249,418	16,806,781	13,110,366	8,560,284	8,448,383	8,039,175
Days of navigation.....	232	231	234	365	365	365

*1895 and 1896 figures include traffic of Canadian canal at Sault Ste. Marie.

"One of the most common failings of those who compare water and rail transportation," says the Railroad Journal, "is the assumption that because the state pays for the maintenance of the waterways, therefore it costs the people nothing. Mr. Erastus Wiman, who is at present an advocate of the enlarged Erie canal, in order to supply cheap transportation to the seaboard, falls into this error in his efforts to impress upon the people of the country the importance of his pet project. He claims that the enlargement of the Erie canal, which is now being made by the state of New York at a cost of nine million dollars, will give to the canal a carrying capacity for western food products equal to that of the five trunk railroads paralleling it, and he adds, 'the railways now carrying these products are exacting rates equivalent to paying fixed charges on five hundred millions of capital; the canal, being free, exacts no such tribute.' Mr. Wiman forgets to explain who pays the nine million dollars, and why that sum should not be considered an expense of transportation just as much as any other sum paid out by the railroads; nor does he make it clear just why the people of the state of New York should pay out this nine million dollars in order that the people of the west may ship their food products at lower cost and without charge so far as any compensation for that particular outlay is concerned. Although it is true that no sufficient data can as yet be supplied to demonstrate the proposition, it would seem as if the experience of recent years has established the fact that an artificial waterway cannot live in competition with the railway. Indeed, it is doubtful if wherever parallel routes are possible, any waterway can successfully compete with the railway for long distances. It is, of course, possible that with improved methods of water transportation the present apparent disability of the waterway may be overcome, but just at present the rail carrier seems to be ahead in the race."

An International Congress on Navigation will be held in Brussels during latter part of July, 1898. It will deal with both maritime and internal navigation, and may be considered as the continuation of the congresses already held in various cities in Belgium, France, Germany and England. It will be held under the patronage of the king of the Belgians, and under the honorary presidency of the ministers of agriculture and public works, finance and foreign affairs. The work of the congress will be divided into five sections, dealing with the canalisation of rivers, canals for internal navigation, maritime canals, sea ports, and monetary questions. As at other congresses, the nature of the proceedings will consist in the reading and discussion of papers, the examination of maps, plans, and models, and excursions to places of interest in Belgium. The papers will be printed in the language in which they are written, and also in French. All particulars are to be obtained from M. Dufourny, Secrétaire Général du Septieme Congres International de Navigation, Rue de Louvain, 38, Bruxelles.

General Manager Schwerin of the Pacific Mail Steamship Co. is thus quoted in a dispatch from San Francisco which discusses plans of that company: "We have now on paper two 10,000-ton twin-screw steamships, designed both for speed and carrying capacity, which we contemplate putting in the Oriental trade. These are to be built in American shipyards, with American capital, and are to have American registers. These vessels are to be far superior in speed and comfort to any now on the Pacific. The plans and details are all on paper and approved, so we are

prepared to begin the actual work of construction at any time. We have not rushed their construction, as we wish first to see the steamships of the Japanese Oriental Co. that are to run on our schedule on May 1 next. We want to see them so that we can build superior ships. That we shall build our new steamers is, however, a certainty. They will be ready to go into commission within the next fifteen months."

John R. Thomas, in a letter to the New York Tribune concerning the proposed selection of ex-Secretary Herbert as counsel for the government in the suit brought by the Cramps, says: "This would be a queer case, when the lawyer for the defendant was the cause of the delay, principally through his incapacity to fill so exalted an office as that of secretary of the navy, his antipathy to a Republican firm of ship builders in a patriotic city and state, and his narrow views of statesmanship in handling so extensive a business as that of building up the navy, with 'cracker' views of a crossroads country lawyer from Alabama. By his action, or want of action, these contractors were hampered and delayed in their work to such an extent that before a fair and impartial tribunal there will be accorded them substantial damages."

On Oct. 1 of this year the strength of the United States navy, according to the annual report of Chief Constructor Hichborn, just issued, was 141 vessels all told, including the ships of both old and new navies. The report of the chief constructor records the advance toward completion of twenty-three vessels, which, when added to those already in the service, will raise the effective sea power of the United States within a year to imposing proportions among nations of the first rank and make it second, Mr. Hichborn says, to Great Britain and France in practical efficiency. During the first ten months of the present year no less than twelve new vessels have been added to the commissioned fleet. These have brought the number of war vessels completed in the last fourteen years up to fifty-seven, all of which are of the most modern type.

An illustration of the result of the practical disappearance of sailing-vessels from the building yards of the north-east coast of England, and the almost universal adoption of pole and derrick masts in steamers, was made apparent recently in one of the largest Tyneside establishments, where out of a very large permanent staff only one draughtsman could be found capable of drawing out a spar and rigging plan for a vessel under construction by the firm.

Charles Scribner's Sons, New York, will publish at the end of October John R. Sparks' book entitled "The History of Our Navy." The work is divided into four volumes and will have about 300 illustrations. The earlier volumes have many contemporary engravings, portraits and documents of exceptional rarity and interest, while in the latest ones the resources of photography and of the best artists have been called into play.

Capt. Campau of the steamer Fairbairn is a careful and capable vessel master. There may be some mistake about the charge that refuse from his vessel was dumped in the Duluth-Superior harbor. It is quite certain, however, that most vessel owners will commend the action of the United States authorities at Duluth in taking steps under the law to protect a harbor on which the government is spending thousands of dollars annually.

In accordance with the programme of gradually removing all center piers from the river, plans are now being prepared in Chicago for a bascule bridge to be built over the south branch of the river at Archer avenue, replacing a swing bridge of the ordinary center pier type.

The Japanese government has placed an order in France for the construction of an armored cruiser of 9,400 tons. It is said that other orders will follow.

Steel Hatches.

Editor Marine Review:—Having just returned from abroad, I have been looking over the numbers of your esteemed paper which have come during my absence. In the August 19 number I observe an article on steel hatches, in which it is said that they will probably be adopted on the lakes in advance of their use elsewhere. Perhaps it may interest your readers to know that such hatches were first put on the steam colliers of the Philadelphia & Reading Railroad, on the plans of which I was engaged 1872 to '74. They have also been fitted on the Red D line ships trading between New York and Venezuela. These hatches were strongly framed in one piece, and were made watertight by rubber strips, and fastened by hinged bolts. They have been very satisfactory, being easily handled and absolutely tight and safe. I may add that on the above named colliers iron deck houses, with iron watertight doors, were first fitted; also complete iron decks, without any wood covering, which has since become the universal practice.

JOHN HAUG.

Philadelphia, Pa., Oct. 20, 1897.

The New York, New Haven & Hartford Railroad Co. has placed an order with the Pusey & Jones Co. of Wilmington, Del., for two steel tugs for use in towing car floats in the vicinity of New York. They will be 110 feet long, 25 feet molded beam and 14 feet deep. Engines in each case will be compound with cylinders of 20 and 40 inches diameter by 28 inches stroke. The boilers will be 14½ by 11½ feet and will be built to withstand 140 pounds pressure.

Changes in the suburban service on the Nickel Plate—Lorain accommodation, No. 19, leaving Cleveland at 8:40 a. m., and No. 21, leaving Cleveland at 5:45 p. m., also Lorain and Cleveland trains leaving Lorain at 6:45 a. m. and 4:18 p. m., will be discontinued after Sunday, Oct. 17.

No. 362, Oct. 31

To Determine Pitch of a Screw Propeller.

The accompanying engravings illustrate a pocket pitchometer. It will be seen from Fig. 1 that it is of very simple construction, small in size, of light weight, and unlikely to get out of order. Figs. 2 and 3 illustrate two methods of its application to determine the pitch of a screw propeller; the former when the propeller is lying on its end in the shop, and the latter when it is on the shaft. There are, however, many other purposes to which the instrument is applicable, as it can be used to determine the angle of any object in relation to any other object; for example, it may be employed to show whether the screw shaft of a ship is at right angles to the piston-rod. The pitchometer consists of a bridge-piece of steel with two ends or feet, to be applied to the object whose inclination

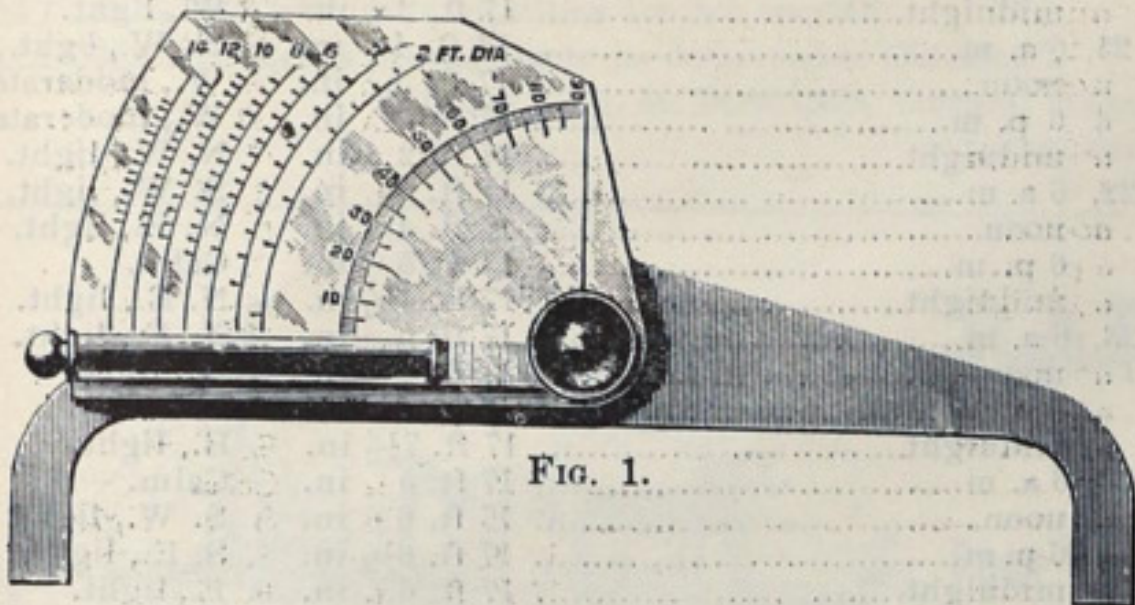


FIG. 1.

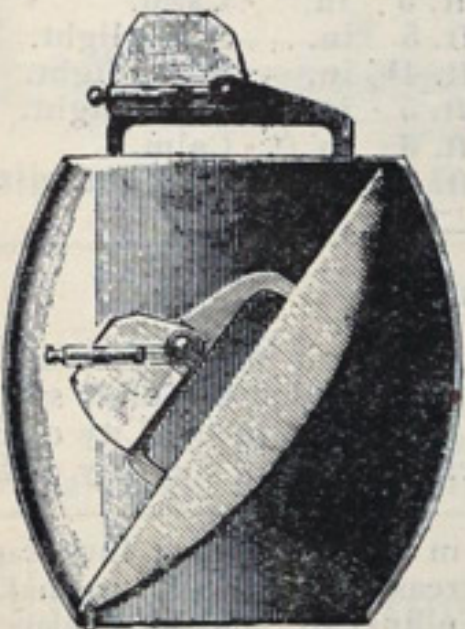


FIG. 2. APPLICATION IN SHOP

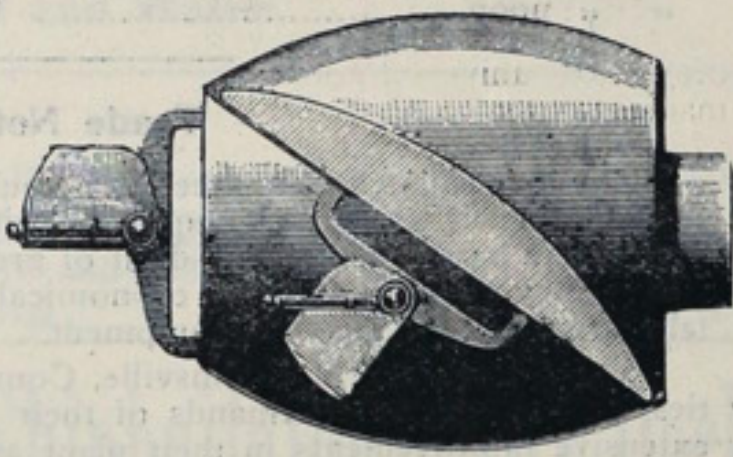


FIG. 3. APPLICATION ON SHIP

A POCKET PITCHOMETER.

is to be measured. On this bridge-piece is a movable index-plate, and a level, also moveable, on the same centre as the index-plate. Both the index-plate and the level can be separately clamped to the bridge at any angle in relation to each other.

The following is the method adopted in finding the pitch of a screw propeller: Lines are drawn on a blade at various radii from the centre of the boss, say at 2 feet, 4 feet, 6 feet, 8 feet, 10 feet, 12 feet, and 14 feet radius. Then, if the propeller be lying as in Fig. 2, the instrument is applied to the boss as shown. The level is first put to zero on the quadrant of degrees, and then both index-plate and level are adjusted together to bring the bubble to the middle of the slot. The index-plate is then clamped by the screw at the back, and the instrument transferred to the first-pitch circle on the blade (Fig. 2). The level is set horizontally, and on its intersection with the arc marked "2 ft. dia." the pitch of the blade on that point can be read. The instrument is next transferred to the line of 4 feet radius, and the process repeated, and so on at 6 feet, 8 feet, 10 feet, 12 feet and 14 feet radius, and thus the pitch is determined at several points. If the propeller is lying as in Fig. 3 the operation is substantially the same, the only difference being that the index-plate is placed at right angles to the bar, or bridge. It will be readily seen that there may be other possible uses of the instrument besides that of measuring pitches, and that it is a very handy tool for the engineer whether he be engaged on shipwork or not. The description is from Engineering of London. The manufacturers are Walker Bros. & Co. of No. 44 Constitution street, Leith.

Stock of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, Oct. 23, 1897:

	Wheat, bushels.	Corn, bushels.
Chicago	3,231,000	20,891,000
Duluth	3,094,000	600,000
Milwaukee	181,000	398,000
Detroit	285,000	26,000
Toledo	287,000	484,000
Buffalo	939,000	1,142,000
	8,017,000	23,541,000

As compared with a week ago, the above figures show, at the several points named, a decrease of 659,000 bushels of wheat and an increase of 1,559,000 bushels of corn. On the same date there was afloat on the lakes 2,051,000 bushels of wheat, 3,239,000 bushels of corn and 1,897,000 bushels of oats. Grain afloat on the canals aggregated 481,000 bushels of wheat, 740,000 bushels of corn and 650,000 bushels of oats.

Hunters' Excursion Rates—Parties of three or more may secure one-fare rates to designated local points on the line of the Nickel Plate road in western Ohio and Indiana; also single tickets will be sold to points in the northwest and southwest.

No. 354, Nov. 15.

Atlantic Records.

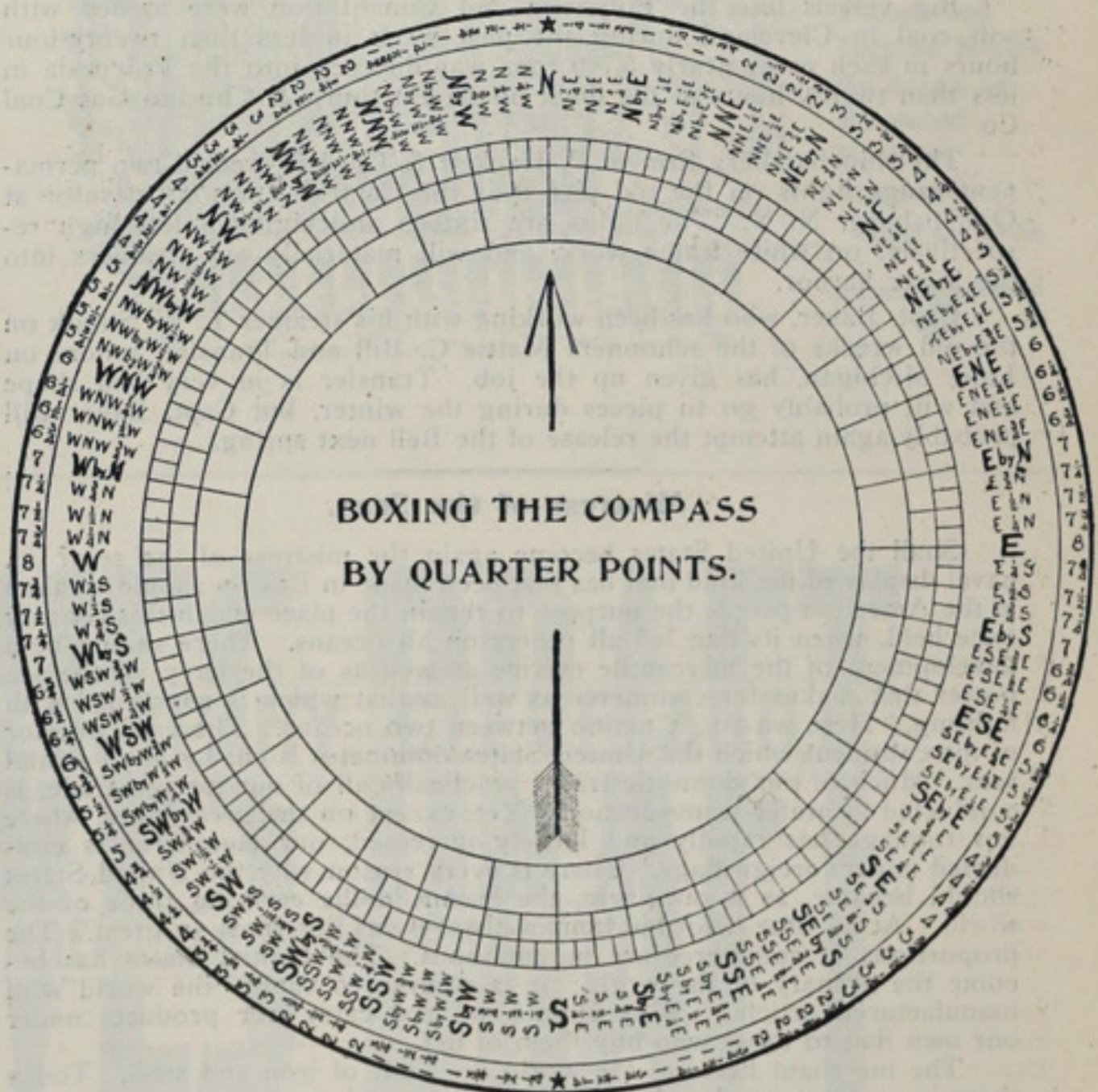
The performance of the Kaiser Wilhelm der Grosse is again causing Atlantic records to be printed. The first steamship to cross the Atlantic was the Savannah, which made the run from Savannah to Liverpool in twenty-nine days and eleven hours. That was in 1819. Beginning in 1852 the records were made between New York and Queenstown, and the best of them, east or west, are shown in the appended table:

	D.	H.	M.
1856—Persia	9	13	41
1856—Persia	9	1	45
1863—Scotia	8	3	0
1869—City of Brussels	7	22	3
1873—Baltic	7	20	9
1875—City of Berlin	7	18	2
1875—City of Berlin	7	15	28
1876—Germanic	7	15	28
1876—Britannic	7	13	11
1876—Britannic	7	12	47
1877—Germanic	7	11	37
1877—Britannic	7	10	53
1879—Arizona	7	8	11
1882—Alaska	7	6	43
1882—Alaska	6	22	10
1884—America	6	14	8
1884—Oregon	6	9	42
1885—Etruria	6	5	36
1887—Etruria	6	4	36
1888—Etruria	6	1	55
1889—City of Paris	6	0	29
1889—City of Paris	5	23	38
1889—City of Paris	5	19	18
1891—Teutonic	5	16	31
1892—City of Paris	5	14	24
1893—Campania	5	12	7
1894—Lucania	5	7	23

The Kaiser Wilhelm der Grosse is not in this list, as her recent record-breaking voyage was between Southampton and New York and cannot well be compared with the New York and Queenstown run.

Boxing the Compass by Quarter Points.

The majority of merchant seamen imagine that, being capable of boxing the compass according to the full points, there is little or nothing more to understand in the matter of naming the intermediate quarter points; but such is far from the truth. Each quarter point has as well defined a name as its more pretentious neighbor, the full point, and it matters not whether the compass is being boxed from north to east, or from east to north, when the particular quarter point is reached, it must be called by its proper name. How common it is to hear a sailor say, east-by-north-half-north, instead of east-north-east-half-east, or to hear him say north-west-by-north-quarter-north, instead of north-north-west-three-quarters-west. In the accompanying diagram, taken from the New York Nautical College



Quarterly, the reader will find the compass boxed correctly. The points and quarter points of the compass also have a numerical value, counting from the poles (N. and S.) to the equator (E. and W.) By consulting the diagram it will be seen that north and south are zero, and that east and west are 8-point courses. Should the wheelman receive such an order as "north, two-points east," he would understand it as a north-north-east course; should he be told to head the ship "south, five-and-a-half-points west," he would bring the vessel head to south-west-by-west-half-west.

In General.

A. F. Yarrow, famous English torpedo-boat builder arrived in New York Saturday on the American Line steamer St. Paul.

It is certainly remarkable that Chicago grain freights should remain at practically the same figures day in and day out for about two months. The rate of $1\frac{1}{4}$ cents on corn to Buffalo was established Sept. 4.

Although bids of the Lake Erie Engineering Works of Buffalo on two waterworks engines, for which the city of Chicago opened proposals recently, were \$21,559 lower than bids of the Holly Co., the contracts have been awarded to the latter concern. There is talk of the Lake Erie company going into court to enjoin the contract.

Dispatches from Washington referring to the interest shown in the Detroit marine postoffice by First Assistant Postmaster General Heath, in his annual report, would indicate that the heads of the department are so strongly in favor of this office that there is little doubt of its continuance for all time to come.

One deal of note was made in Bessemer pig iron, the past week, a Pittsburg producer taking 35,000 tons for 1898 delivery. This bears out what has been referred to before—that leading Pittsburg steel works have been using up more iron than their furnaces have made. The pig iron market remains at \$10.50, Pittsburg delivery, and \$9.85, valley furnace, for 1897 iron, the old differential between the valley and Pittsburg price being again, for the time being, equal to the freight—Iron Trade Review.

In the United States court at Cleveland, a few days ago, Judge Hammond very promptly disposed of a case that had attracted considerable attention among ore sales agents. The Millie Iron Mining Co. sued Corrigan, McKinnie & Co. for \$15,000, the mining company claiming that a sale of Millie ore made in 1894 by the defendants, who were then acting as sales agents for the ore, should have brought \$1 a ton more than was realized. In the fall of 1894 prices of ore were advanced to figures much higher than the spring prices at which most of the Lake Superior output was sold. The owner of the Millie mine thought he should have had the advantage of fall prices, but before any testimony had been submitted by the sales agents the court took the case from the jury, on the ground that no cause of action had been made out by the plaintiff.

Around the Lakes.

Buffalo harbor received over 1,000,000 bushels of grain a day last week, and took care of it in good time, as a rule.

An advertisement elsewhere in this issue announces that the receiver of the Vessel Owners' Towing Co. will sell the remaining tugs of the line at auction in Chicago, Nov. 22.

Capt. John Bailey, of the schooner Ada Medora, fell into the hold of his vessel at Naubinway, Mich., Monday and was killed. He having sailed vessels for over a score of years. He was about fifty-five years old and leaves quite a family.

It is said that the Duluth & Iron Range Railroad Co. will spend about \$1,000,000 in improvements during the coming winter and spring, and that new work at Two harbors will include the construction of a new ore dock in place of the present No. 2 dock.

Big vessels like the Polynesia and Constitution were loaded with soft coal in Cleveland during the past week in less than twenty-four hours in each case; nearly 5,700 tons was dumped into the Polynesia in less than twenty hours at the dock of the Pittsburg & Chicago Gas Coal Co.

The shipchandlery firm of P. Hackett & Co. has erected two permanent range lights on the old pier near the Central Vermont elevator at Ogdensburg, N. Y. The lights are sixteen and eighteen feet high respectively, on white frame work, and will materially aid steamers into the lower harbor.

Capt. Baker, who has been working with his steamer T. W. Snook on the old wrecks of the schooners Mattie C. Bill and Transfer, ashore on Lake Michigan, has given up the job. Transfer is in very bad shape and will probably go to pieces during the winter, but Capt. Baker will probably again attempt the release of the Bell next spring.

Mistress of the Seas.

Shall the United States become again the mistress of the seas? A naval display of the kind that has just been made in Boston should awaken in the American people the purpose to regain the place which this country once held, when its flag led all others on all oceans. There should be a development of the mercantile marine as well as of the navy, of the sea power that makes for commerce as well as that which is concerned with fighting. Here we are, a nation between two oceans. The vast, interior of the continent which the United States dominates is cut by great inland seas. Much of our domestic trade, practically all of our foreign trade, is conducted by water transportation. Yet, except on the great lakes, where our tonnage has rapidly and largely increased, our commerce is conducted under foreign flags. There is every reason why the United States should become, as it once was, the leader in the carrying trade of the world. At no time before in human history was this trade so great. The proportions of commerce are mountainous. The United States has become the granary of the world; it is coming to supply the world with manufactured articles. Why should we not carry our products under our own flag to those who buy them of us?

The merchant fleets of the world are built of iron and steel. Today there is no place on the globe in which iron and steel can be made more cheaply or better than in the United States. The material of a new merchant marine is here. So long as congress forbade our merchants to buy their ships abroad and we could not build them at home, the revival of our carrying trade remained an iridescent dream. Now we are approaching the point where the building of American ships is possible, and with a relaxation of the proscriptive policy of the government it will become entirely practicable. This is of especial importance to New England, which in the past furnished the best sailors the world ever saw, and can do so again when they are wanted.—Boston Post.

Draft of Water at the Lime-Kilns.

Notwithstanding complaints of low water heard from some parts of the lakes, it would seem that there has been little difference of late in the Detroit river draft. Following are the gauge readings at the Lime-kilns for the past week:

DATE.	DRAFT.	WIND.
Oct. 19, 6 p. m.	17 ft. $4\frac{1}{2}$ in.	S. E., light.
" " midnight	17 ft. 7 in.	Calm.
Oct. 20, 6 a. m.	17 ft. 4 in.	N. W., light.
" " noon	17 ft. $5\frac{1}{2}$ in.	S. W., light.
" " 6 p. m.	17 ft. 4 in.	N. W., light.
" " midnight	17 ft. 2 in.	W., light.
Oct. 21, 6 a. m.	17 ft. 4 in.	N. W., light.
" " noon	17 ft. 3 in.	W., moderate.
" " 6 p. m.	17 ft. 2 in.	W., moderate.
" " midnight	17 ft. 2 in.	N. W., light.
Oct. 22, 6 a. m.	17 ft. 4 in.	S. W., light.
" " noon	17 ft. 4 in.	N. E., light.
" " 6 p. m.	17 ft. 5 in.	Calm.
" " midnight	17 ft. $4\frac{1}{2}$ in.	N. E., light.
Oct. 23, 6 a. m.	17 ft. 5 in.	N. E., light.
" " noon	17 ft. 4 in.	N., light.
" " 6 p. m.	17 ft. 7 in.	Calm.
" " midnight	17 ft. $7\frac{1}{2}$ in.	E., light.
Oct. 24, 6 a. m.	17 ft. 5 in.	Calm.
" " noon	17 ft. 6 in.	S. W., light.
" " 6 p. m.	17 ft. $6\frac{1}{2}$ in.	S. E., light.
" " midnight	17 ft. 6 in.	E., light.
Oct. 25, 6 a. m.	17 ft. 5 in.	Calm.
" " noon	17 ft. 5 in.	S. E., light.
" " 6 p. m.	17 ft. $4\frac{1}{2}$ in.	S. E., light.
" " midnight	17 ft. 5 in.	N. E., light.
Oct. 26, 6 a. m.	17 ft. 6 in.	Calm.
" " noon	17 ft. 5 in.	N., light.

Trade Notes.

The new side-wheel steamer to be built in Detroit for the Cleveland & Buffalo Transit Co. is to be equipped with the Howden hot draft system, the owners having found this draft of great advantage in the City of Buffalo. They attribute the very economical performance of the City of Buffalo largely to the Howden equipment.

The Collins Co. of Collinsville, Conn., in order to better their facilities, and to meet the demands of their increasing business, are making extensive improvements in their plant at Collinsville, and have placed a contract with the Berlin Iron Bridge Co. of East Berlin, Conn., for a large addition to their forge shop. The new construction will be entirely of iron in order to have it fire proof.

Charles E. Billin of Chicago, western representative of Bement, Miles & Co., manufacturers of metal-working machine tools, announces that his company has recently been asked to dispose of a riveter and crane for one of the western railroad companies. Both riveter and crane were purchased from Bement, Miles & Co. some time since but have never been used nor have they ever been unboxed. The riveter is a 96-inch steam riveter with cast iron frame, wrought steel stake and is in every way complete. It weighs 36,900 pounds. The crane has a capacity of 15,000 pounds. It is complete with crab, bridge and all details. The weight of this latter is 10,340 pounds. Photographs and prices will be furnished on application to any of the offices of Bement, Miles & Co.

Thomas Drein & Son of Wilmington, Del., who supply life boats and life rafts of all kinds, as well as life preservers, cork buoys, etc., to a great number of the principal ship builders and ship owners of the United States, ask the Review to remind their patrons on the lakes that advantage can be gained by placing orders now for any of their specialties. They always meet with great difficulty in the spring on account of a crowding of orders just before the opening of navigation on inland waters throughout the country. They have some orders in hand now from lake builders, on which delivery is not to be made until spring, and they say they can offer advantages to other builders and owners who may see fit to place orders now.

Managers of railways that carry ore from Lake Erie ports to the furnaces have said that, as a measure of protection to pig-iron manufacturers who are competitors of the Carnegie company, they would reduce the freight on ore from Lake Erie to the furnaces as soon as the Carnegie ore railway from Conneaut was fully in operation. Some of the iron men concerned have little hope regarding anything that may be done in this regard, however, as they are of the opinion that Carnegie's cost of transportation over his own road will be figured too high.

The Entire Fleet of Tugs of the Vessel Owners' Towing Co. are to be Sold

By order of the Circuit Court of Cook County, Illinois.
Bids for all or any of these tugs will be received by the Receiver until 9:00 A. M., November 22, 1897; all bids to be accompanied by a deposit of 10 per cent. of the amount bid.
The tugs can be seen by applying to the Receiver.

J. L. HIGGIE, Jr., Receiver,

Room 63, No. 99 Randolph St., CHICAGO, ILL.

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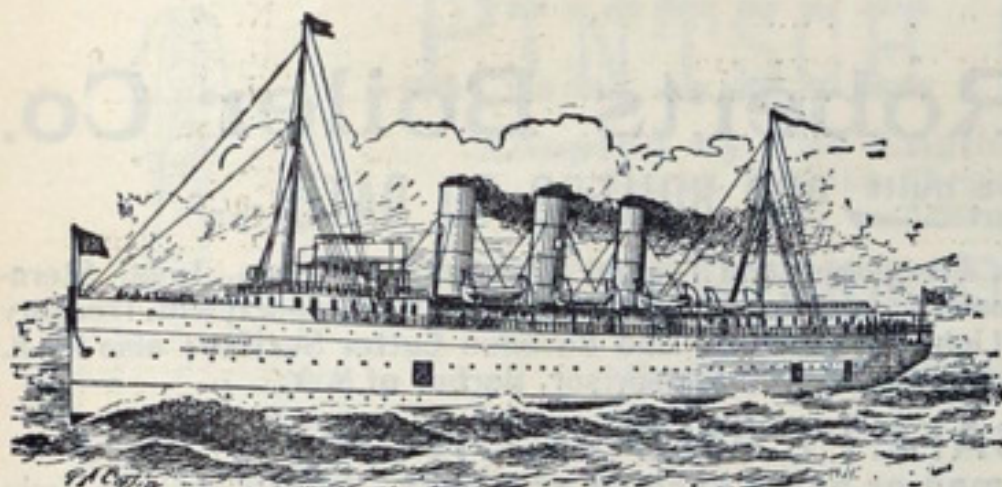
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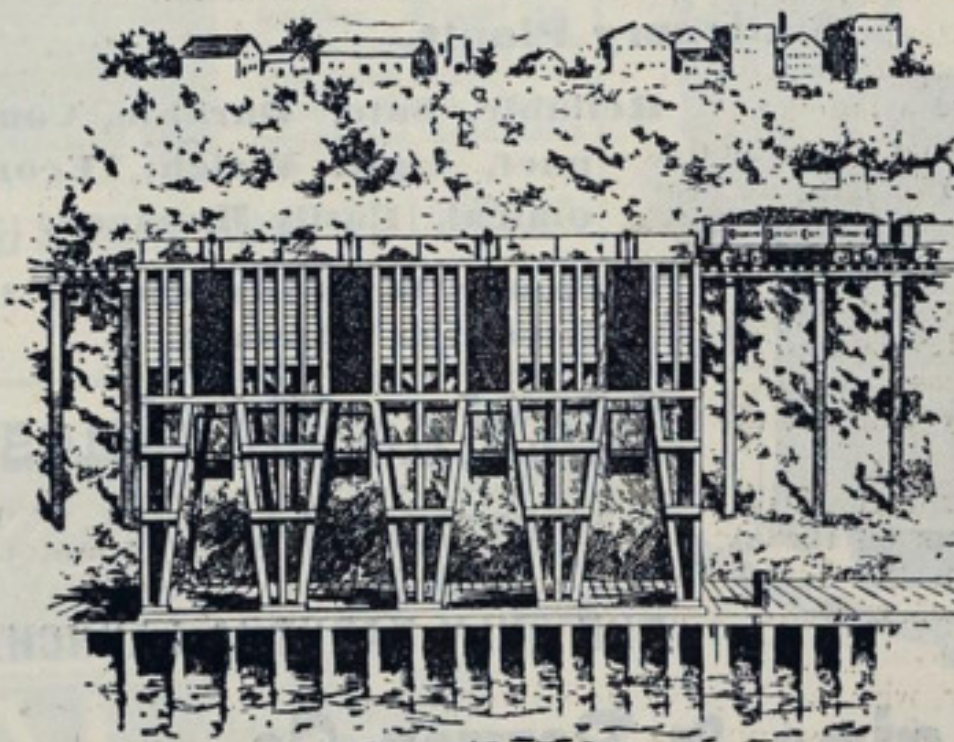
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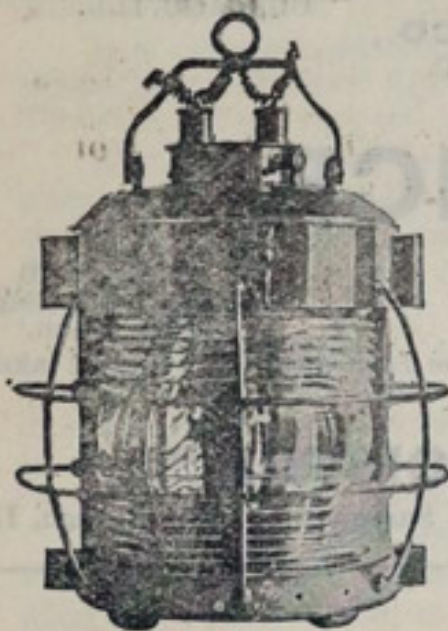
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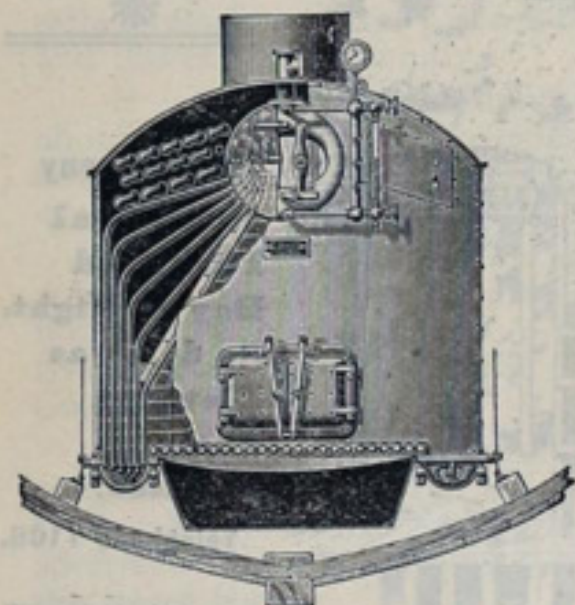
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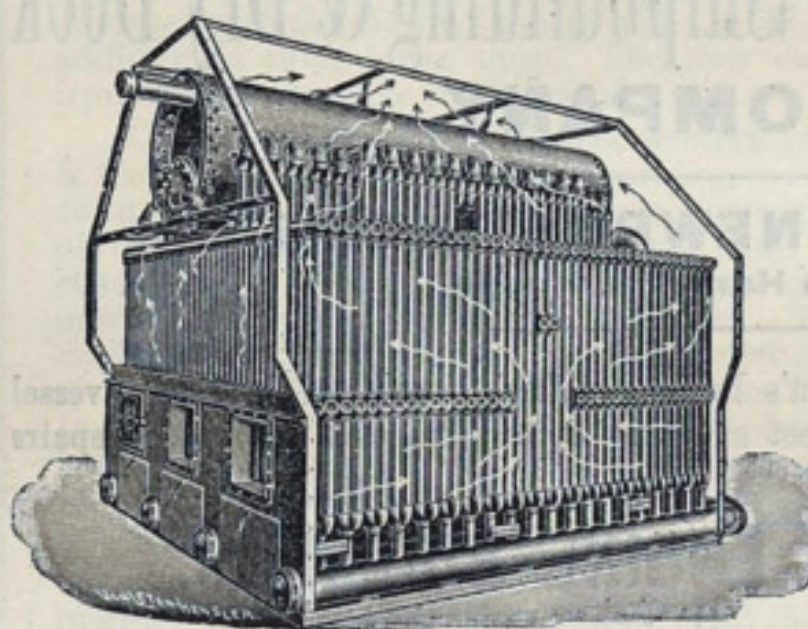
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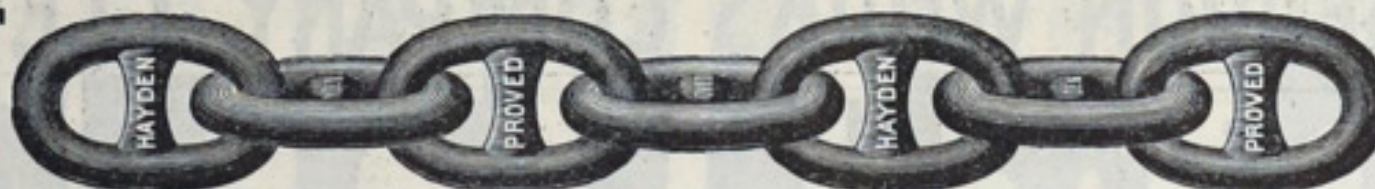
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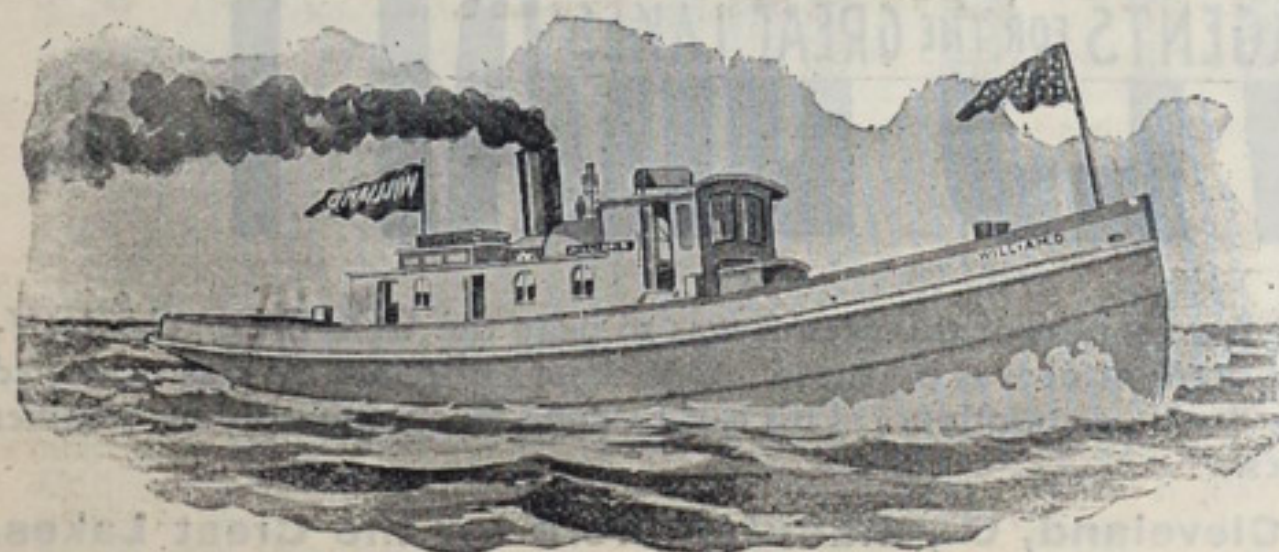
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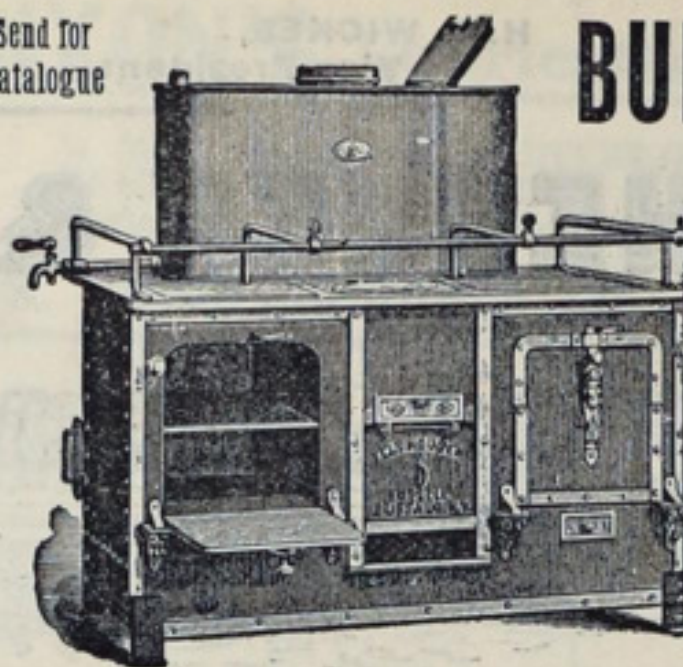
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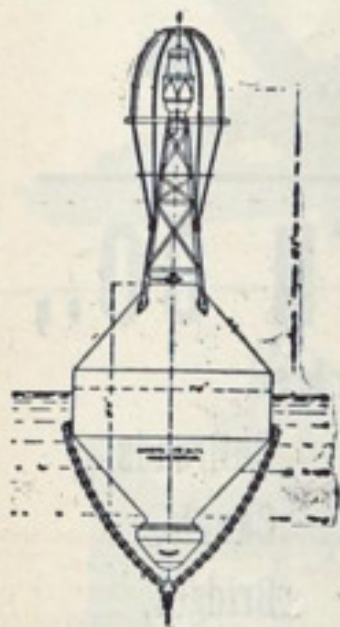
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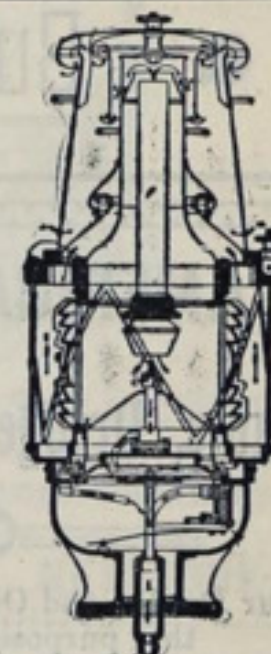
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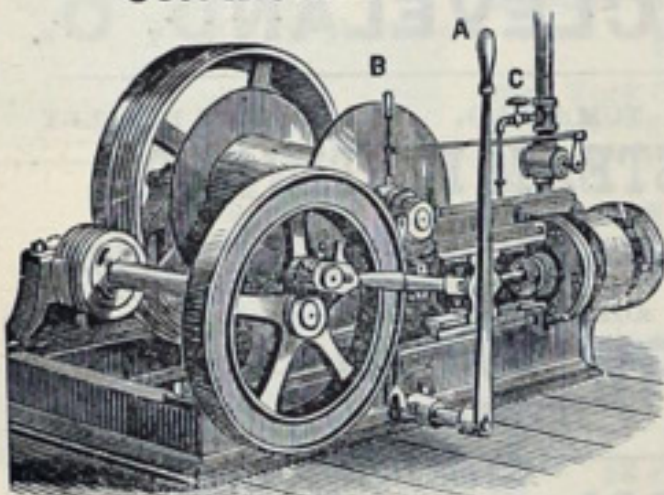
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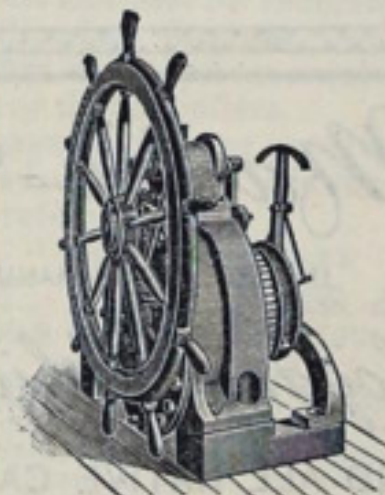


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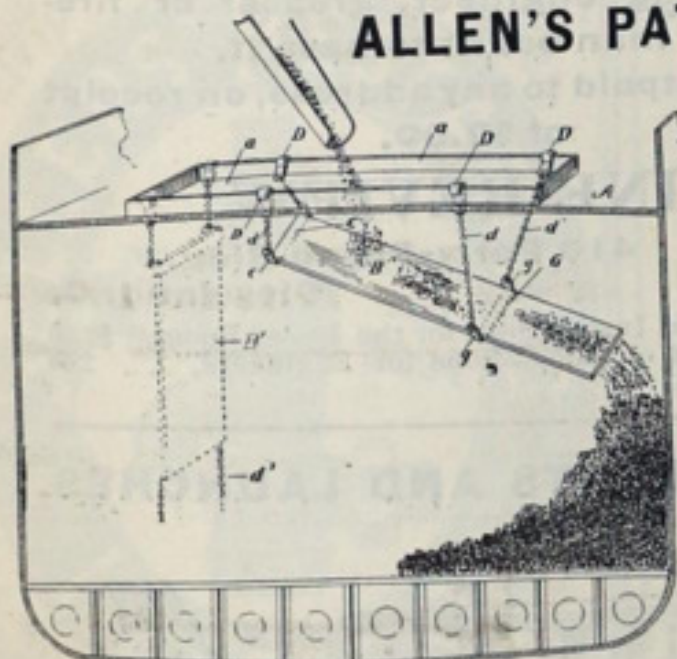
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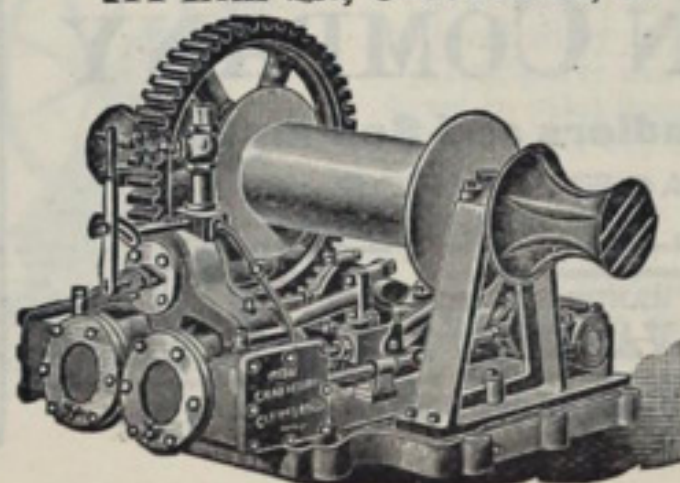
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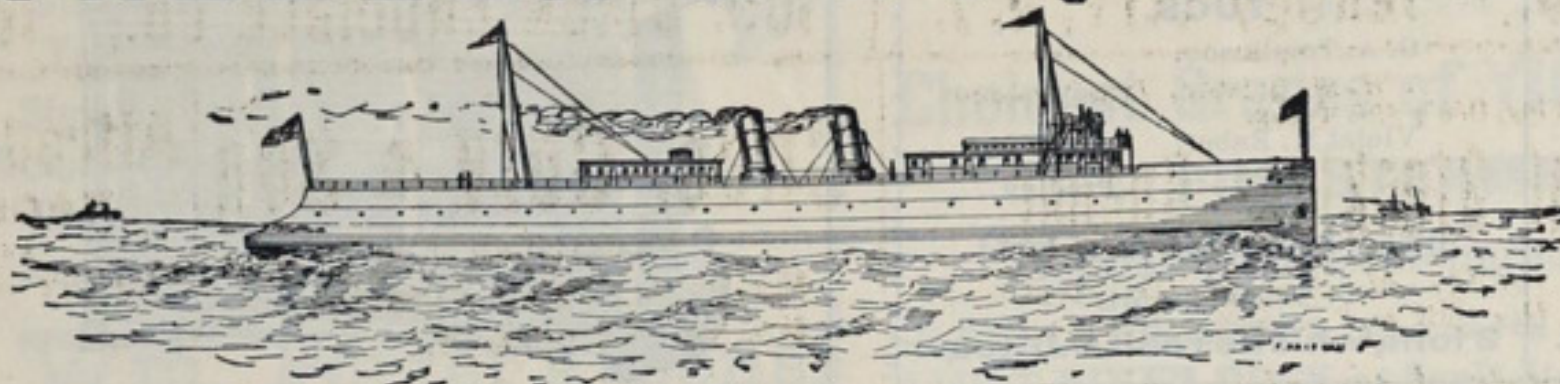
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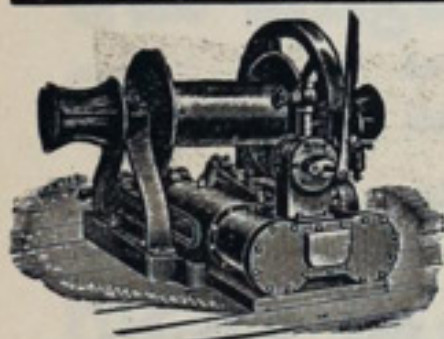
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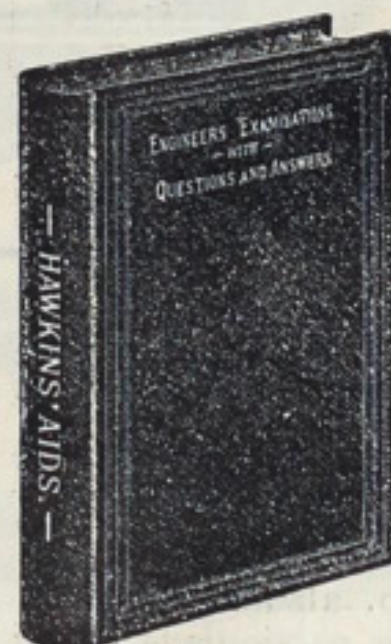
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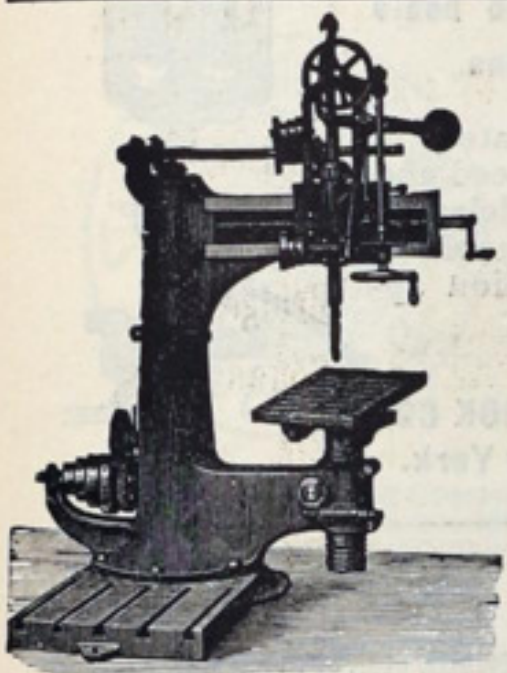
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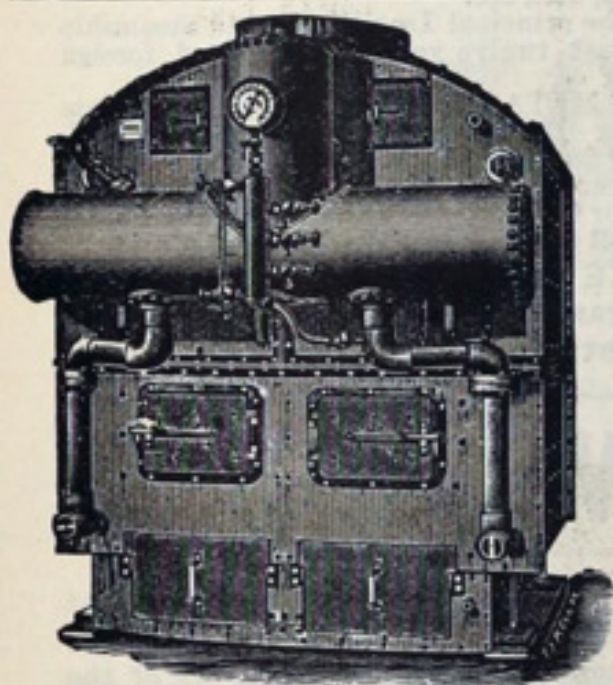
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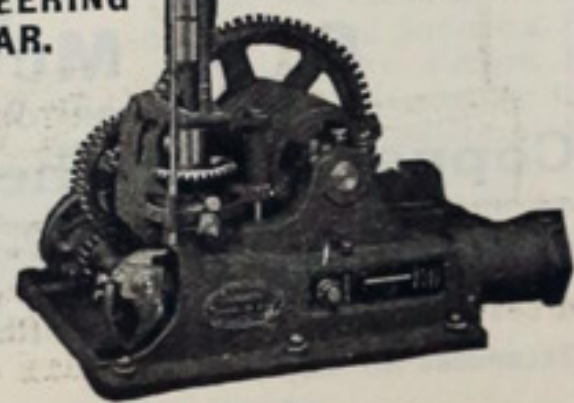


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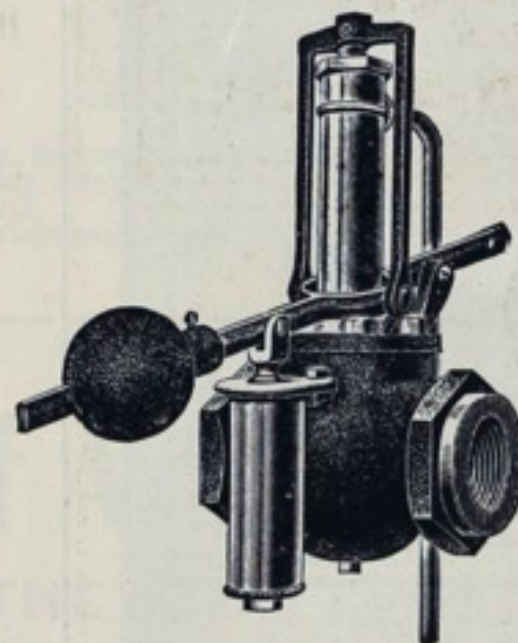


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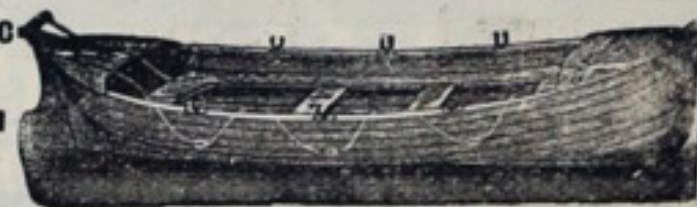
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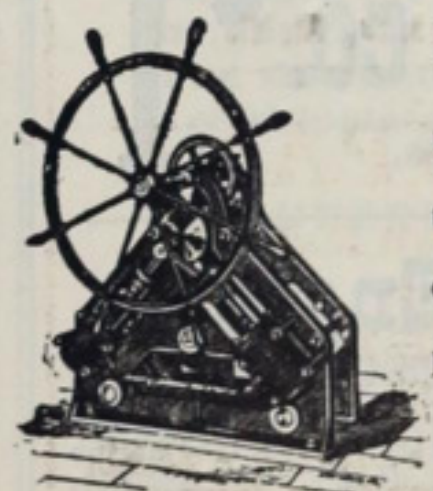
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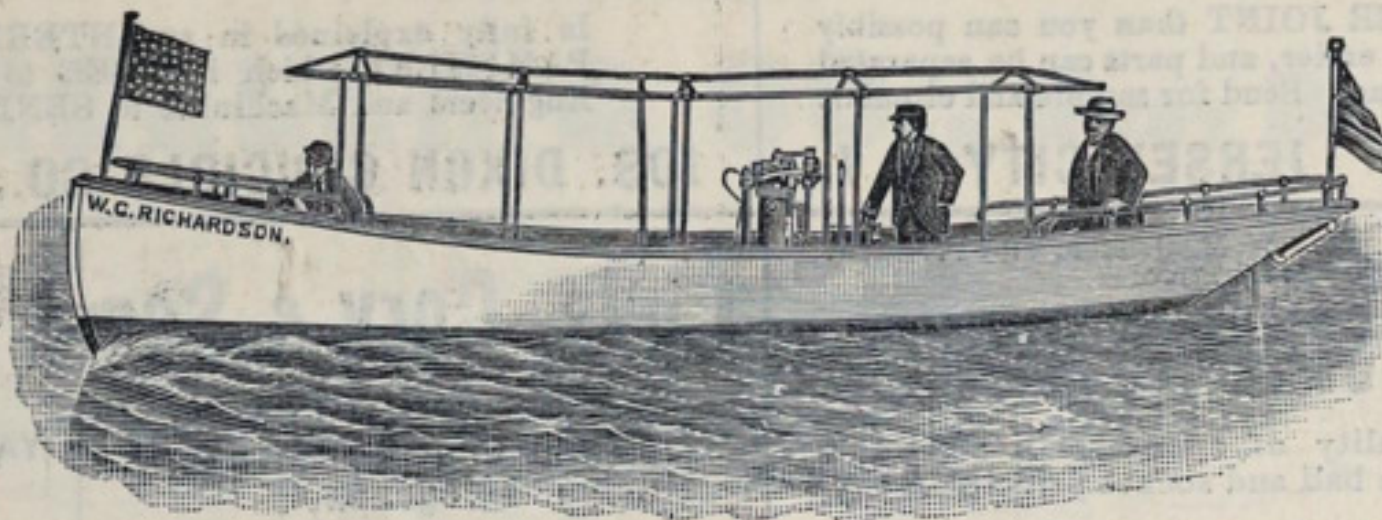


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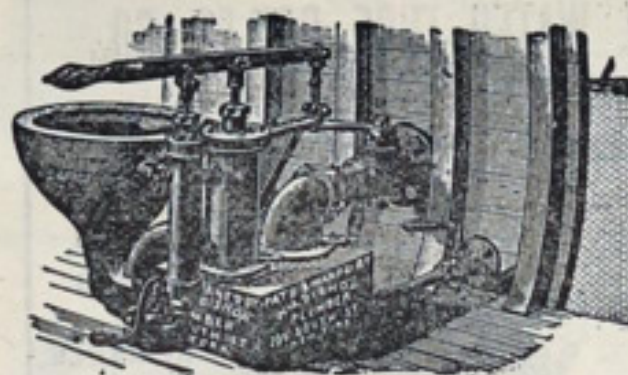
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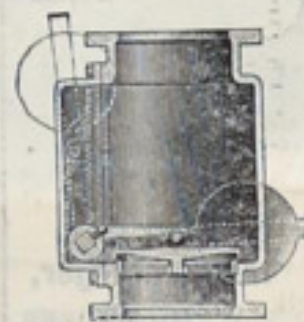
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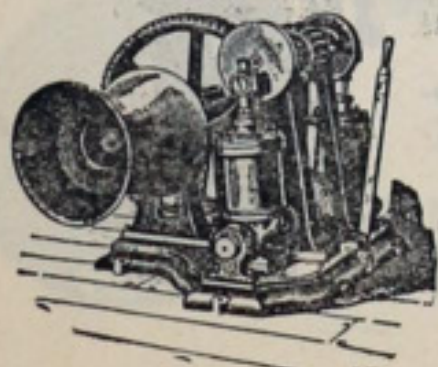
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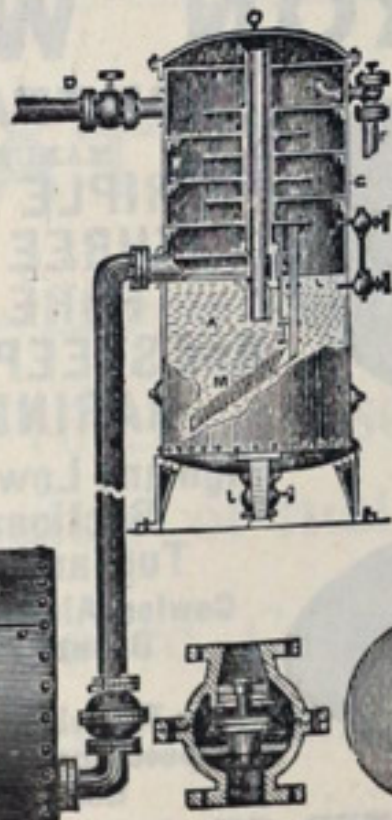
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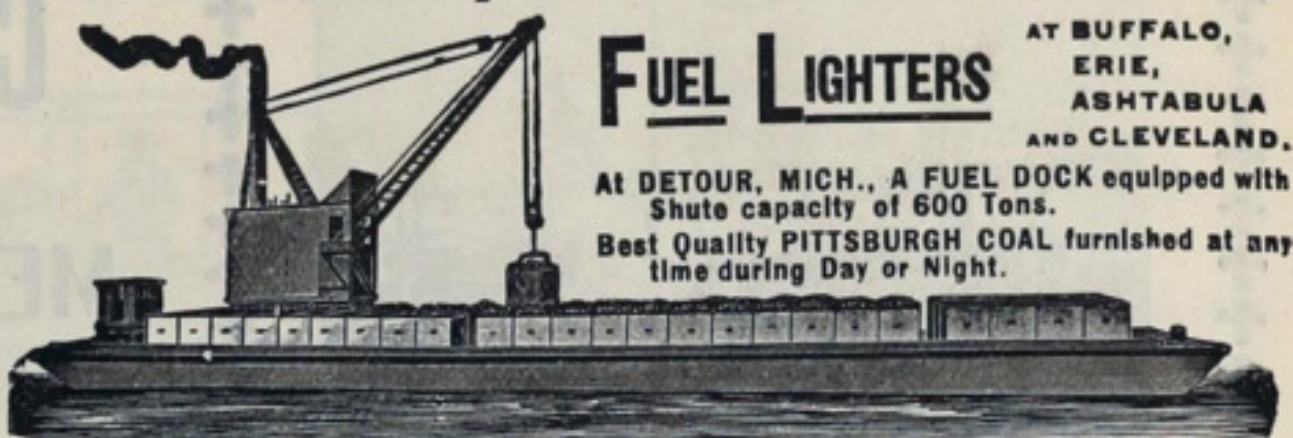
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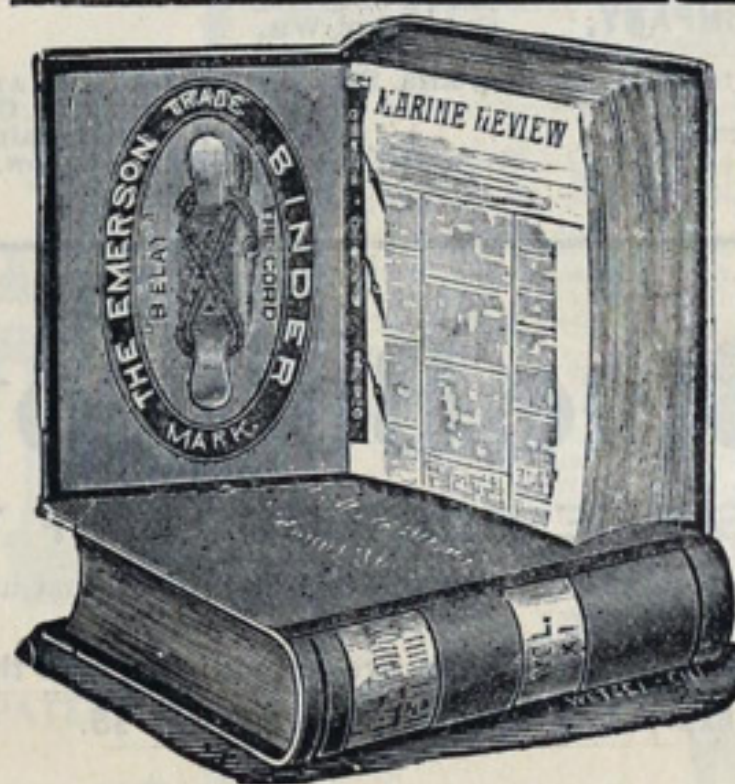
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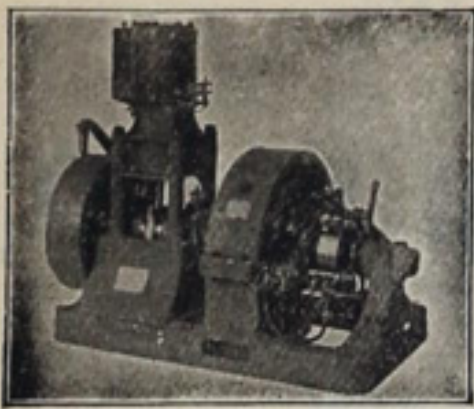
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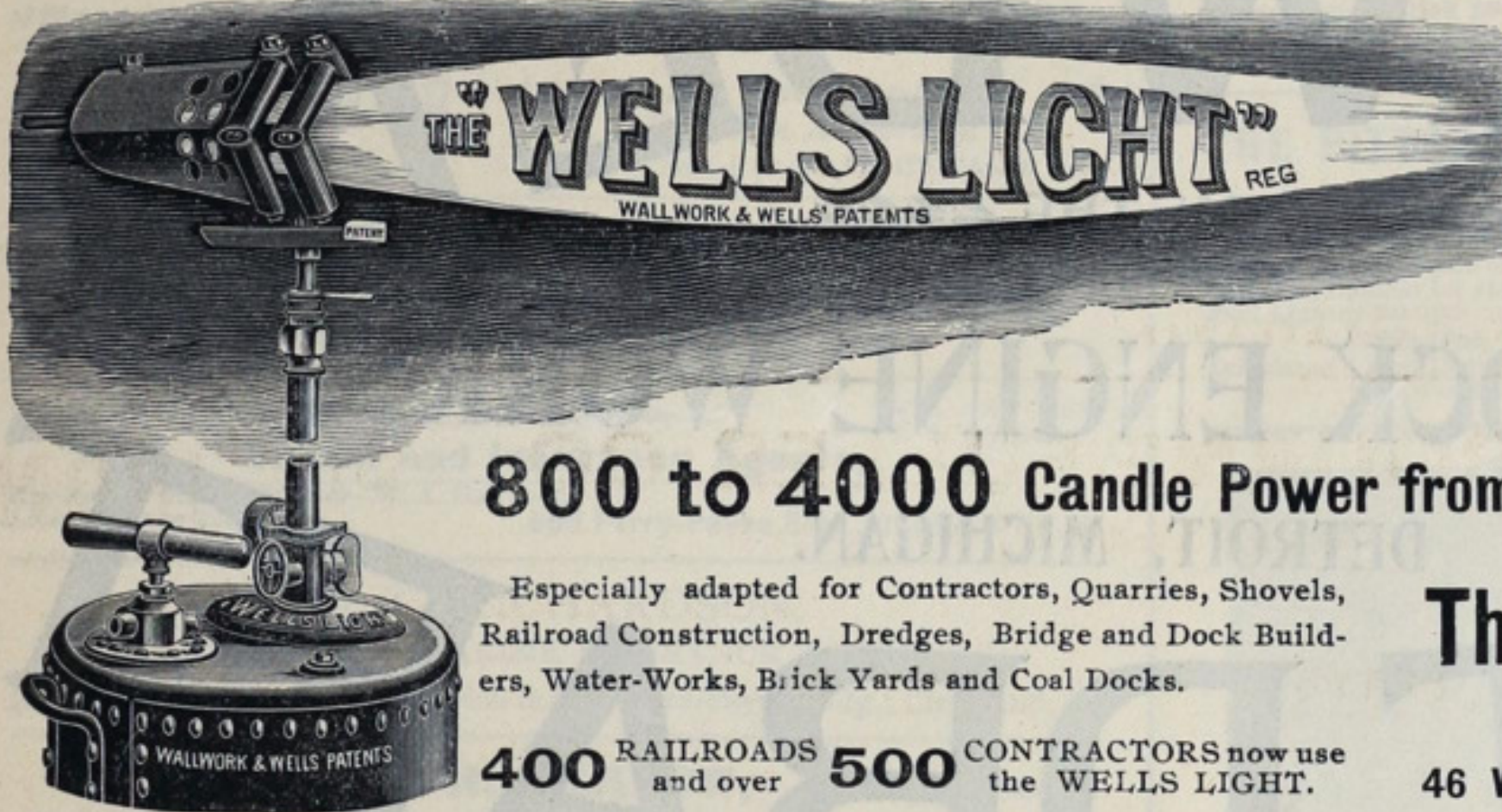
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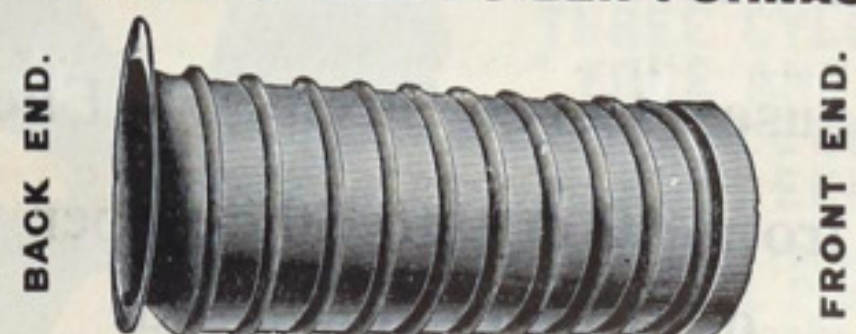
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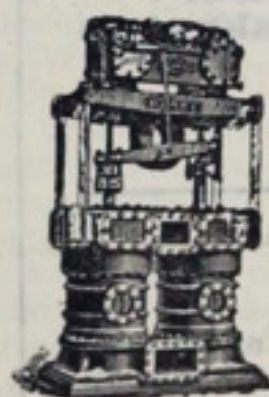
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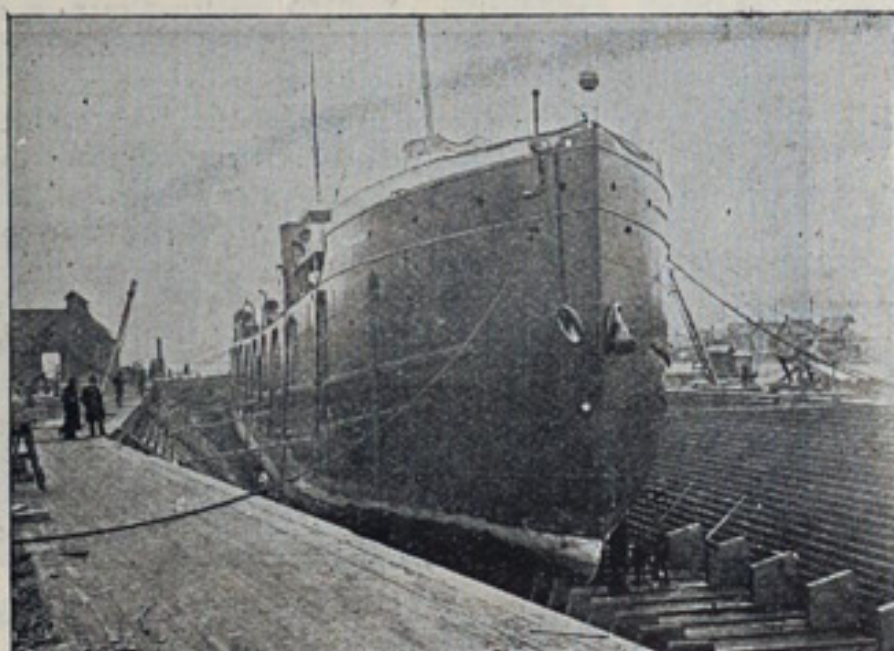
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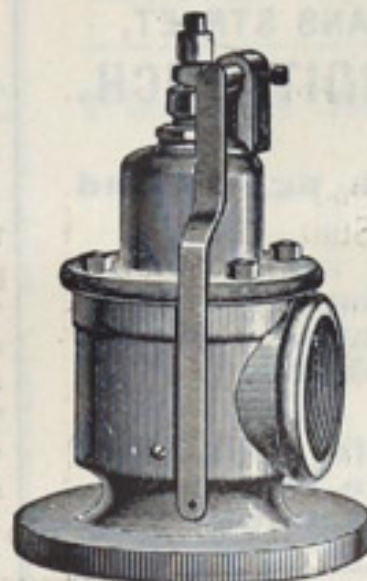
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